



FRIDAY, OCTOBER 18, 1878.

Timber Splice for the Lower Chords of Wooden Bridges.

There is hardly any matter which can be published in a technical paper like the *Railroad Gazette* which has greater interest than the experience of our older engineers. We have been fortunate in receiving from Mr. Benjamin H. Latrobe drawings and descriptions of a number of devices which he has used during his long professional career, and which we will publish from time to time.

This week we give engravings of timber splices for the lower chords of wooden bridges, which he has described as follows:

"The engravings figs. 1 and 2 of a splice for the timber lower chords of truss bridges show the details of the proposed mode of connecting the several sticks composing the chords, and the proportional resistances of the different parts of the combination are also given. Assuming the total strength of the splice to be 96,000 lbs. for a chord stick 6 in. x 12 in., the direct cohesion of the fibres of the wood being taken at 2,000 lbs. per square inch for white pine (being one-fifth of its resistance of 10,000 lbs. per square inch to fracture), for the (4x12) area or 48 square inches of its section between the notches in its sides = the resistance

quest in such structures and also in roofs of wider span. The freight houses of the Baltimore & Ohio Railroad at Locust Point, in Baltimore, and the extensive rolling-mills of the same company, at Cumberland, Md., show the splices above described well applied by officers of the company without suggestion from myself, and long since I ceased my official connection with the road.

"Figs. 3, 4 and 5 represent a splice of a different form for timber chords, and consisting entirely of wrought iron. It will be seen that this splice consists of two wrought-iron link bars let into the sides of the wooden chord, and having the proper proportional surfaces in contact with the fibre of the timber, so as to give the required adjustment of resistances to crushing, tearing apart and sliding of the grain of the wood upon itself. This form of splice, dispensing entirely with cast iron, is lighter and more compact in appearance, and as a tie for roof interiors would be preferable on that account. I used it, with a slight difference of mode of connecting the two links, in the roof of the wide span of the Harper's Ferry Bridge, destroyed by the Confederates in 1861. The screw and cross-bar enable the links to be drawn tight after being let into the sides of the chords, thus perfecting the adjustment of the resisting pressures to the strains. It is apparent, however, that the links themselves may, with due care, be so fitted into the sides of the timbers as to make further adjustment unnecessary. In this case the splice becomes a very neat and effective one and almost invisible to the eye if the wood and iron are painted the same color. The curve of the links I made simple semicircles, without attempting to calculate to what it should more properly be upon a close consideration of the relations

= 24 square inches, which at 5,750 lbs. per square inch gives 138,000 lbs. in all. The lateral cohesion of the iron being here called into play, the section of resistance is doubled to allow for the difference. The cross-bars have a joint section of 12 square inches like the bolts and links."

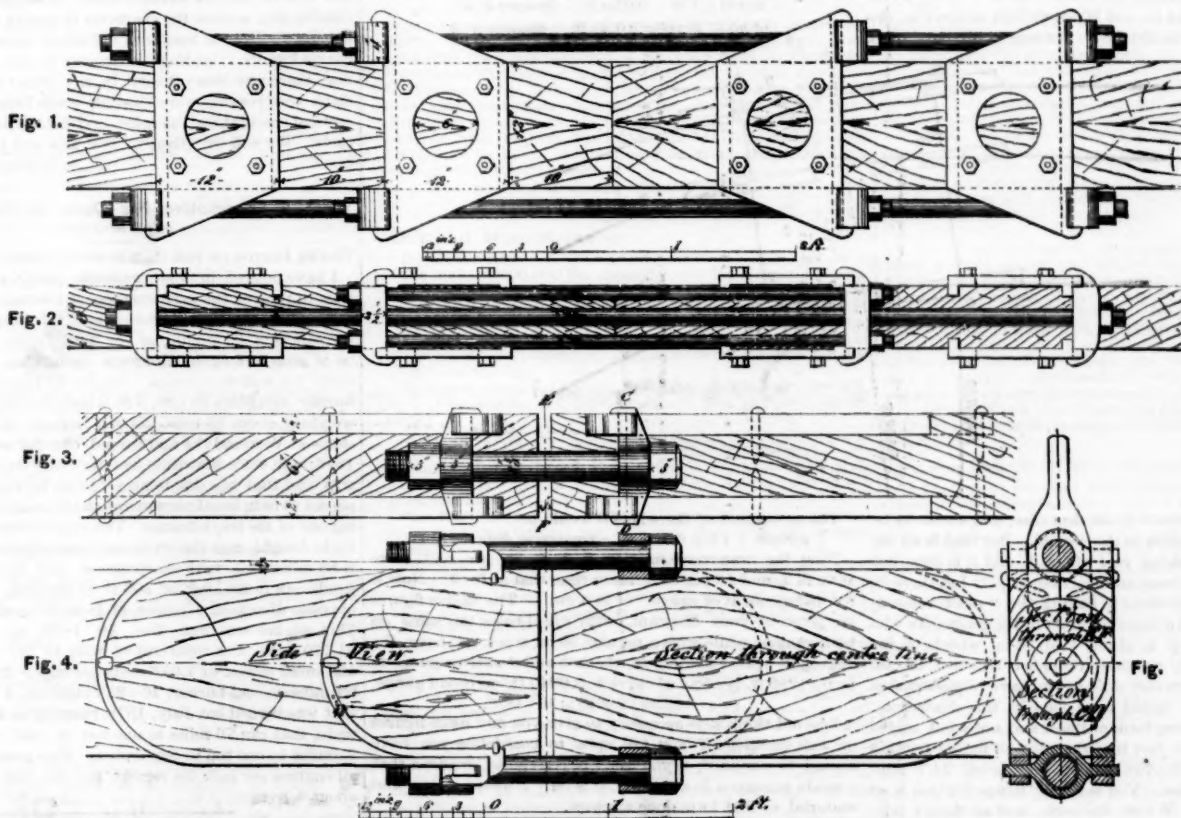
Contributions.

Curve Resistance as Affected by the Gauge.

BELLWOOD, Oct. 12, 1878.

TO THE EDITOR OF THE RAILROAD GAZETTE:

It is a general rule with all lawyers, or advocates of any cause, when they are advancing their arguments before a judge or jury, to draw particular attention to something the opposing counsel has not said; to pass by as quickly as possible some fact that damages their case, and finally when they have no argument left at all, they try to amuse the jury and draw their attention away from the points at issue by telling funny stories without much point to them. You have reached the last stage, and instead of answering my calculations and figures by calculations and figures, you endeavor to raise a laugh at my expense. I can stand it, and look upon your stories as a tacit admission of the weakness of your case. Indeed, you admit in plain words that I am right; but you cavil over the word "much." Well, as Webster gives the meaning of "considerable" to be "of importance or value," I am willing to accept your word "considerable," and say that the resistance is "considerably less" on the narrow than on the wide gauge, "being proportional to the gauges"—your own words as to the difference due to longitudinal slipping.



TIMBER SPLICE FOR THE LOWER CHORDS OF WOODEN BRIDGES.

to crushing within the notches in its sides at 1,000 lbs. per square inch for $12 \times 1 \times 8 = 96$ square inches, and the resistance to sliding of the fibres between the notches at the end of the stick at 100 lbs. per square inch for 960 square inches of area. These resistances to the different forces applied to the tearing of the chord apart were derived from the statements by different writers upon the results of experiments upon the timber in question. The experience acquired by myself in the rebuilding of many bridges which, under the rapidly increasing strains to which the rapidly increasing weights of engines and trains subjected those first built, had to have their lower chords renewed, showed that the assumptions of resisting capacity in its several components, as stated above, were confirmed by the satisfactory manner in which the newly constructed chords withstood the strains to which they were subjected. The iron tie-rods were assumed to be strained to 12,000 lbs. per square inch for the 8 square inches, in their total sectional area, so that the different elements of the splice amounted, each by estimate, to the same aggregate of 96,000 lbs. I do not recollect any instance of a giving way of the splices thus formed, up to the time of the destruction of the bridges during the war; and I may add that in the rebuilding of the Susquehanna Bridge upon the Philadelphia, Wilmington & Baltimore Railroad at Havre de Grace this form of splice proved equally effective in the new timber chords which were applied to two of the spans prior to their recent entire reconstruction, with the rest of the bridge, in iron.

"Although timber has given place to iron in bridge superstructures, and will continue to do so until it will be almost wholly superseded, upon the railways, at least, yet it will still, for a long while, be employed for common road river-crossings, and a good splice for bottom chords will be in re-

between the resistances of the iron bars and the wooden fibre for the sort of timber composing the chord. This form of splice would be the cheapest and most elegant when compared with the one of cast and wrought iron, and I would like to see it used upon such a scale as to show its merits more fully."

The following description was appended by Mr. Latrobe to the drawing:

"The chord is assumed to be 10×18 , the section of the two middle sticks of the bottom chords of the Susquehanna Bridge at Havre de Grace in the middle of their length, where their section is largest. For any smaller section of timber, the dimensions of the different parts of the splice would be proportionally reduced. The parts of the splice are proportioned thus: The direct cohesion of the fibre of the wood is taken at 1,277 lbs. per square inch (about one-ninth of the force required to tear it asunder, according to Haswell) for 108 square inches (or 6×8), the section remaining uncut between the side notches. This gives a strength of 138,000 lbs. The aggregate bearing surfaces in the notches (counting on the diameter of the semicircle, not on the periphery) is 138 square inches, so that the force tending to crush these surfaces would be 1,000 lbs. per square inch = 138,000 lbs. in all. Lastly, the surfaces exposed to sliding or sloughing of the fibres is 1,442 square inches, which at 95.7 lbs. per square inch will afford the same total resistance of 138,000 lbs. So much for the wood. The aggregate section of the links is $2 \times \frac{3}{4} \times 8 = 12$ square inches, which at 11,500 lbs. per square inch gives 138,000 lbs. The tie bolts have an aggregate sectional area of 12 square inches also, which at 11,500 lbs. per square inch gives the same total. The hook-shaped ends of the links give a total section on the plane of disruption of $1\frac{1}{2} \times 2 \times 8$

Now, putting to one side your assertions that I "assumed," "accidentally discovered" and "guessed" certain facts (I will merely say, Mr. Editor, that, simply because it takes you some time to get a new fact through your head, it is no reason why you should "assume" that the party who says it is a fact accidentally discovered it or guessed it to be so. The mere fact that a person differs from you does not prove that person to be wrong and you right. We are none of us infallible, even if we should happen to be editors of railroad papers); laying this all to one side, however, I am willing to let my figures stand against your stories, satisfied that the impartial reader will admit that you have not satisfactorily answered my claims, but have virtually admitted them. To draw attention to these claims properly, I will restate them, and divide them into three instead of two. I claim that a 10' curve on the broad gauge developed resistance equal to a 16' curve on the narrow (which proportion I change to your figures, as mine had been roughly approximated, and the proportion now claimed is as 10' to 15.7'). My reasons for making this claim were these:

1st. That, owing to the increased length of outer rail on the broad gauge as compared with the narrow, the distance that the wheels must slide would be less on the narrow than on the broad, and the resistance in proportion.

This claim you have admitted plump and plain, as follows: "The longitudinal slip 1', 2' (narrow-gauge) is considerably less than 1, 2 (broad-gauge), the two being proportional to the gauge."

The proportion of the gauges gives us

As 3 ft. : 4 ft. 8½ in. :: 10' to 15.7'.

The proportion of the outer rails gives us

As 18.84 ft. : 29.58 ft. :: 10' to 15.7'.

The train mileage for the year was: Passenger, 415,041; freight, 751,732; service, 198,235; switching, 94,165; total, 1,455,173, being an increase of 77,206 miles, or 5.9 per cent., over the previous year. The cost of locomotive service was 21 cents per mile, a decrease of 2 cents, or 9.5 per cent., from the previous year.

The traffic for the year was as follows:

	1877-78.	1876-77.	Inc. or Dec.	P. c.
Passengers carried.....	233,067	205,335	I.	27.732
Passenger mileage.....	8,715,315	9,149,705	D.	434,390
Tons freight carried.....	275,617	247,526	I.	28,091
Tonnage mileage.....	70,706,581	60,097,934	I.	10,608,647

Av. train load:
Passengers, No. 21.00
Freight, tons. 94.06
Average receipts:
Per pass. per mile.... 4.200 cts. 3.849 cts. I. 0.251 ct. 9.1
Per ton per mile.... 2.208 " 2.004 " D. 0.306 " 13.7
Of the passenger mileage 34.7 per cent. was of through and 65.3 per cent. of local passengers, through mileage showing a decrease of 15.7 per cent., and local an increase of 2.4 per cent. Of the tonnage mileage 29.7 per cent. was of north-bound, and 70.3 per cent. of south-bound business, the increase in north-bound mileage being 18.9 per cent., and in south-bound, 17.1 per cent. North-bound rates decreased 20 per cent., and south-bound 11.5 per cent. Cotton carried was 238,291 bales, an increase of 10,186 bales, or 4.5 per cent.

The earnings for the year were as follows:

	1877-78.	1876-77.	Inc. or Dec.	P. c.
Freight.....	\$1,025,071.46	\$1,001,036.71	I.	\$24,034.75
Passengers.....	366,043.65	352,167.50	I.	13,876.09
Express and mail.....	83,002.63	95,586.56	D.	12,583.93
Miscellaneous.....	24,362.30	23,844.11	I.	518.19
Total.....	\$2,098,540.04	\$2,072,634.94	I.	\$25,905.10
Expenses.....	1,498,526.72	1,559,108.32	D.	60,581.60
Net earnings.....	\$600,013.32	\$513,526.62	I.	\$86,486.70
Gross earnings per mile.....	3,982.05	3,932.89	I.	49.16
Net earnings per mile.....	1,138.55	974.43	I.	164.12
Percent. of exps.....	71.41	75.22	D.	3.81

The Receivers' income account is as follows:

Gross earnings.....	\$2,098,540.04
Interest and exchange.....	4,011.12
Land Department.....	5,537.42
Total.....	\$2,108,108.58
Ordinary expenses.....	\$1,498,526.72
Reconstruction, new equipment, etc.....	223,092.24
Increase in assets.....	333,270.18
Decrease in liabilities.....	52,619.44
Total.....	\$2,108,108.58

The earnings and expenses of the branch lines (included also above) were as follows:

	Gainesville Branch.	Starkville Branch.	Columbus Branch.	Aberdeen Branch.
Earnings.....	\$8,326.85	\$8,890.60	\$27,434.08	\$13,371.40
Expenses.....	22,431.87	11,375.71	22,457.26	14,616.62
Loss.....	\$14,105.02	\$2,485.11	\$1,245.22	\$1,245.22
Profit.....			\$4,976.82	

The total loss being \$12,858.53, against a profit of \$3,322.89 the previous year.

During the year 4,050 tons of steel rails were laid on the main line, and 260,021 new ties. About seven miles of old rails were repaired or relaid. For the current year contracts have been made for 4,000 tons of steel and for a new iron bridge over the Tombigbee.

The claim of the United States for arrears of taxes has been satisfactorily settled. A compromise settlement as to past and future taxes has been made with the state of Mississippi, and confirmed by act of the Legislature.

In compliance with orders of Court, the sum of \$902,400 has been distributed to holders of first-mortgage bonds. The decrees of sale of the road are now fully confirmed, but the sale is postponed, in view of the probability of a readjustment without it.

Western Union Telegraph.

At the close of the fiscal year ending June 30, 1878, this company had 81,002 miles of line, 206,202 miles of wire and 8,014 offices. Its stock and debt were as follows:

Stock.....	\$41,073,410
Less held by company.....	6,004,835
Stock outstanding.....	\$35,068,575
Gold building bonds, 7 per cent.....	\$1,373,000
Sterling bonds, 6 per cent.....	981,234
Currency bonds, 7 per cent.....	3,920,000
Total.....	\$41,342,809

During the year 12,505 shares of stock were issued, 12,500 in part payment for purchase of Atlantic & Pacific Telegraph stock. There were bought and canceled for the sinking funds \$174,206 bonds, and the sinking funds now amount to \$95,292.36. The stock outstanding is \$438 per mile of line and \$170 per mile of wire; bonds, \$77 per mile of line, and \$30 per mile of wire.

The number of messages sent, etc., was as follows:

	1877-78.	1876-77.	Inc. or Dec.	P. c.
Messages sent.....	23,918,294	21,158,941	I.	2,759,353
Av. receipts per message.....	38.9 cts.	43.6 cts.	D.	4.7 cts.
Av. expense per message.....	25.0 " 29.8 " D. 4.8 " 16.1			
Av. net per message.....	13.9 " 13.8 " I. 0.1 " 0.7			

The earnings for the year were as follows, rentals of leased lines being included in expenses:

	1877-78.	1876-77.	Inc. or Dec.	P. c.
Gross earnings.....	\$9,335,810.07	\$9,812,352.61	D.	\$476,541.94
Expenses.....	6,173,810.90	6,072,224.94	D.	498,414.04
Net earnings.....	\$3,161,999.77	\$3,140,127.67	I.	\$21,872.10
Percent. of exp.....	66.13	68.00	D.	1.87

The disposition of the net earnings was as follows:

Net earnings.....	\$3,161,999.77
Four dividends, 1½ per cent. each.....	\$2,103,736.00
Interest on debt.....	453,741.52
Sinking funds.....	79,970.40
New lines and additional wires.....	216,330.93
Purchase of stocks, patents, etc.....	44,758.49
Surplus.....	\$263,482.43

This surplus has been applied toward the carrying the amount due on the purchase of Atlantic & Pacific stock.

The report gives tables showing the company's business for 11 years past. From these we select the first two and the last two years, showing the changes in its business in this period:

	1866-67.	1867-68.	1876-77.	1877-78.
Miles of line.....	46,370	50,183	76,855	81,002
Miles of wire.....	85,291	97,594	194,323	206,202
Offices.....	2,565	3,219	7,500	8,014
No. messages sent.....	6,404,595	7,934,933	21,158,941	23,918,294
Average receipts per message.....	104.7 cts.	43.6 cts.	38.9 cts.	38.9 cts.
Av. net per mess.....	41.3 " 13.8 " 13.9 "			
Gross earnings.....	\$6,568,925	\$7,004,560	\$9,812,353	\$9,335,810
Net earnings.....	2,024,920	2,641,711	3,140,128	3,161,999

The International Ocean Telegraph Company (of whose stock the Western Union holds \$1,038,500 out of \$1,500,000) had net earnings for the year of \$254,204, out

of which 8 per cent. was paid on the stock. The company paid \$100,000 of its bonded debt, leaving \$130,000 outstanding.

The Gold & Stock Telegraph Company (of whose \$2,500,000 stock the Western Union owns \$1,195,250) earned net \$264,003 from which it paid \$32,700 interest, \$48,000 for construction and 6 per cent. on the stock, investing a surplus of \$36,000 in the stock of the American Speaking Telephone Company.

After giving a table showing the receipts, etc., for 12 years, President Green concludes as follows:

"Summarizing, in round figures, the general statement in detail of the financial condition of the company, the net earnings in twelve years past have been over thirty-six millions, of which fourteen and one-quarter millions have been paid in dividends to stockholders; something over four and three-quarters millions in interest, discount and sinking fund on bonded debt, leaving a surplus of seventeen millions. Of this surplus six and one-third millions have been invested in additional lines and wires; one and two-thirds millions in the purchase of stocks in leased lines, and half a million (in excess of the fund provided by the bonds) in the Western Union Building, making eight and one-half millions invested in new permanent property. For the remaining eight and one-half millions, the company holds in its treasury valuable dividend-paying stocks and bonds, including over six millions of its own stock, over seven millions of stock in the Atlantic & Pacific, and over one million each in the Gold & Stock and the International Ocean Telegraph companies, all and severally worth more than the cost value at which they are stated."

"The reduction made to the public in the average tolls per message during the previous year resulted in a reduction of the profits, and loss to the company of over 3½ cents per message; but during the last year a still larger percentage of further reduction in the average rate of tolls has been made to the public, without reducing the average profit per message to the company; and it is confidently believed that the economies in expenditures now fairly inaugurated will be found to justify still further reductions in its average rate of tolls to the public, without reducing the average profit per message, but securing a further increase of business and of net revenues to the company. In fact, the reduction of expenditures and increase of revenues shown have all accrued during the last half of the year; the first half having to compare with the autumnal half of the year 1876, in which the Centennial Exposition and Presidential election rendered the business very large, showed an actual falling off, which was more than made up during the other half of the year. And since the close of the fiscal year the gains to the company in both respects have been, are at this writing, and promise to be during the ensuing year, much larger than any such gains previously realized."

THE SCRAP HEAP.

Railroad Manufactures.

Riehle Brothers, of Philadelphia, have recently put in a track scale of 100,000 lbs. capacity, for the Rogers Locomotive Works at Paterson.

McIntosh, Hemphill & Co., of Pittsburgh, have lately completed a four-ton steam hammer for the Keystone Bridge Co.; a mill for rolling bridge-links for the Superior Mill of A. Klonan, at Pittsburgh, and a blowing engine for the Cambria Iron Co.

The steel works of Benjamin Atha & Co., at Newark, N. J., are running full double turn on file, tool and spring steel.

Wm. Sellers & Co., of Philadelphia, have a large order for machine tools to go to New South Wales (Australia).

Isabella Furnace No. 1, at Pittsburgh, has made in its present run 75,723 tons of iron in 943 days, and is still doing good service.

Ore Hill Furnace, in Chatham County, N. C., is expected to go into blast before long. It has been idle for several years.

Morgan, Williams & Co., of Alliance, O., have just completed for the plate mill of the Cleveland Rolling Mill Co. a pair of "guillotine" shears, with knives 110 inches long. They will shear steel sheets at a single cut, leaving the edges perfectly true and smooth.

The Baldwin Locomotive Works, in Philadelphia, have recently delivered three engines to the Utah & Northern road, two to the East Tennessee, Virginia & Georgia, one each to the Central of Georgia, the Western of Alabama, and the East Line & Red River road. Orders have been received for 13 more engines for the New York Elevated and for seven for the Valley Railroad, of Ohio.

The Grant Locomotive Works, at Paterson, N. J., have received an additional order for 30 consolidation engines for the New York, Lake Erie & Western road, making, with the 30 now under construction, 60 in all.

The Rhode Island Locomotive Works, at Providence, have an order for 12 more locomotives for the New York Elevated road. They are to be eight-wheel tank engines of the Forney pattern, like one-half of those now in use on the company's East Side Line.

Bridge Notes.

Hubbard, Eddy & Co., of Cleveland, O., are building a combination bridge 470 ft. long, in three spans, for the Sciota Valley road, near Waverly, O. They have just completed a Howe truss bridge at Seville, O., for the Cleveland, Tuscarawas Valley & Wheeling road.

The Detroit Bridge & Iron Co. has contracts on hand amounting in all to 1,400 lineal feet of iron bridging and 1,200 ft. of combination bridge.

Mr. James McVaine, of Cleveland, O., has the contract for building all the wooden trestle-work on the Valley Railroad.

Larkworthy & Burge, of Quincy, Ill., recently completed a Howe truss bridge of 160 ft. span over the Chariton River for the Quincy, Missouri & Pacific road.

Notes.

The old story about the person who walked in his or her sleep and stepped off a car of an express train going 40 miles an hour and awoke suddenly, much surprised but unhurt, is going the rounds again. Last year the party was a beautiful young girl; this year it is a boy 12 years old, which is not nearly so interesting.

A Toronto lady, washing her hands in an Erie sleeping coach, the other day, lost an elegant cluster diamond ring through the water pipe of the wash-bowl.—*Syracuse Gazette.*

That is the Toronto lady's story; but the trackman who found it says that the jeweler in the next town told him that style of ring was worth about \$1.25 per dozen.

Jumping on a car in motion is always risky business, but it is doubly so on the elevated roads in New York. By the time a man has been satisfactorily run over by a car or two and then dumped 30 feet upon a stone pavement, he is generally distributed over the street for a block or so and it is quite a job to find the whole of him.

The Williams Lamp Patent.

Irvin A. Williams has begun suit in the United States Circuit Court in Chicago against the Chicago & Northwestern,

the Chicago, Rock Island & Pacific, the Chicago, Burlington & Quincy and the Illinois Central companies for infringement of his patent for improvements in locomotive lamps. The patent was issued April 29, 1862, and reissued Dec. 19, 1865, and it is claimed that its validity has been established in a recent suit against the Rome, Watertown & Ogdensburg Company.

The following extracts are from the decision of the United States Circuit Court in New York in the suit brought for infringement of the Williams Lamp patent. The suit was against the Rome, Watertown & Ogdensburg Railroad Company, for using burners in locomotive headlights, manufactured by the Adams-Westlake Manufacturing Co., of Chicago, which company defended the suit against the Rome road. The following extracts are from the opinion of the Court:

"This suit is founded on reissued letters patent granted to Irvin A. Williams, Dec. 19, 1865, for 'an improvement in locomotive lamps.' The specification of this reissue says: 'The object of my invention is to permit coal oil or kerosene to be used in lamps for locomotive headlights with success and to obtain full advantage of its great light-producing capacity.'"

"The defendant attacks the plaintiff's patent for want of novelty, and has put in evidence various patents which are claimed to anticipate the plaintiff's inventions. The specification of the plaintiff's reissue states distinctly that he does not claim to be the original inventor of any one of the individual members which compose the several combinations claimed by him. He claims that such several combinations were not before united in a lamp. The inquiry therefore, is whether such several combinations existed before, each in its entirety, in any of the earlier patents adduced. An examination of those patents shows that this inquiry cannot be answered in the affirmative."

"It is contended for the defendant that all of the claims of the plaintiff's patent, except the eleventh, are claims for aggregations and not for patentable combinations, and the doctrines of the cases of *Hails ex. Van Warner* and others, are adduced to show the invalidity of those claims. As all the individual members of each of the plaintiff's combinations are old and each of such members is found in some pre-existing lamp, it is urged that each of such members had, in the prior lamp, the same office and the same operation which it has in the plaintiff's lamp, and that the plaintiff has only aggregated or assembled the detached parts or members, with change of position, and has not made any patentable combination. It is contended that no new, improved or useful result is produced by any aggregation claimed by the plaintiff. These doctrines are not applicable to the present case."

"There can be no doubt that the combinations made by the plaintiff were the results of invention and were patentable. The evidence shows that they were the results of careful and patient investigation and experiment. His lamp was the first one which successfully burned kerosene oil in a locomotive headlight. He was successful in being able to employ the great brilliancy of an oil rich in carbon under the peculiar and disadvantageous circumstances of burning it in a lamp in rapid motion and subject to great vibrations. The merit of his lamp is generally acknowledged. It has superseded those previously in use, and it is used on nearly all the railroads in the United States. No prior invention is adduced as anticipating him, except such as are found in pre-existing patents. They were considered by the patent office on the granting of the reissue, and held to be of no effect, and the critical examination to which they have now been subjected confirms that conclusion. The plaintiff is entitled to a decree for an injunction and an account of profits, and an ascertainment of damages, in accordance with the prayer of the bill."

For the Benefit of the Sleeping-Car Porter.

A gentleman who has just returned from a trip, says Geo. Peck, in the *Milwaukee Sun*, tells of a new use that has been found for electricity, that even beats the telephone or the phonograph. It is a device by which the colored sleeping-car porter can be awakened at every station. It is well known that the normal condition of the colored person is to be asleep. The colored person goes to sleep on the slightest provocation. In the ordinary affairs of life this eccentricity can be overlooked and provided for, but the business of sleeping-car porters has baffled scientists to devise a method of keeping them awake. A porter can keep awake by constantly whistling, but this practice has a tendency to awaken passengers who do not desire to be awakened.

The inventor has adapted electricity to this branch of railroading in such a manner that the colored person's usefulness is increased, at very little expense. It is desirable that the porter should be awake at each station where the sleeper stops, in order to snatch the small baggage of those who get aboard, and throw it under the seats. A wire runs from the engine under the cars, and is connected with an electric dice in the cushion of the hind seat of the sleeper, where the colored man is apt to congregate, and at the same moment that the engineer rings the bell on approaching a station, he touches the thingumbob attached to the wire. Suppose the porter to be seated in his accustomed place, peacefully dreaming the happy hours away, snoring for all that is out, and dreaming of his Nancy in St. Louis, for instance. His head is thrown back, his eye balls are in repose, his mouth is open like an approach to a tunnel.

He is sitting on the electric dice. The hand of the engineer playfully touches the cornucopia, the lightning flashes back to the sleeper, a charge of electricity goes meandering up the spinal column of the African, he is raised up to the roof of the car, and when he comes down he is wide awake and ready for business. There is no other thing on earth that will fetch a porter except electricity. A conductor's boot has been known to do it, but it takes several applications and the effect is not quite as satisfactory. Railroad companies that have adopted the telegraphic awakener in the South are receiving the encomiums of the people. This is, indeed, an age of improvement.

Fast Time on the Pittsburgh, Fort Wayne & Chicago.

On Oct. 9 a special train with a number of officers of the Pennsylvania Company on board made an unusual run over this road. The train consisted of a baggage car and two directors' cars; it left Pittsburgh at 7:10 a. m., and reached Chicago at 6:20 p. m., making the run of 469 miles in 11 hours 10 minutes, an average of 42 miles an hour. The train made only such stops as were necessary—chiefly at crossings, where the Ohio law compels a stoppage, and at one point was detained 20 minutes by an accidental breakage on the engine. The regular time of the fastest express train over the road is 18 hours 28 minutes.

Devotion to Duty.

At the Wollaston accident on the Old Colony road, it appears that a passenger train from Boston was due at the place in a few minutes after the accident took place, and would have run into the wreck if not signaled. Fireman Stickney, of one of the wrecked engines, thought of this, and, notwithstanding one of his arms was broken, he managed to secure his lantern, ran up the track and stopped the coming train. Conductor Sisson had also thought of it, but could not find any lantern among the wrecked cars.



Published Every Friday.

CONDUCTED BY

S. WRIGHT DUNNING AND M. N. FORNEY.

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EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

THE RECENT COURSE OF WORKING EXPENSES.

After the collapse of 1873 prices began to go down rapidly. It was supposed at the time that this downward progress would soon be arrested, and every few months for the past five years we have seen it announced that we have at last "touched bottom." Railroad companies have been among the greatest sufferers—perhaps the greatest sufferers—by the fall in prices as applied to their services, in their case there being all the general reasons and some special ones for a great reduction in prices. But the railroads are buyers as well as sellers, and they have had the benefit of the great fall in the prices of all supplies and of labor, so that the bills for working expenses for the same amount of traffic are now very much less than in 1873 and before. And the companies have usually made the most of this in their reports to their stockholders. Condoling with them over the loss of traffic or more commonly the greatly reduced rates which have kept down the earnings of their property, they at the same time congratulate them on the great reduction of working expenses, which sometimes has permitted the maintenance of the old or of some other rate of dividend, and sometimes has been the means of avoiding bankruptcy. A very large part of this reduction, which hitherto has been almost uninterrupted since 1873, has of course been due simply to the general fall in prices. It would be grossly unfair to say that it all has been; for, as these pages bear witness almost every week, great progress has been made in the past five years in the practice of true economy in railroad working—in the art of doing the same amount of work with a smaller amount of materials and labor.

More than once in reviewing the business of a year we have intimated that we had probably reached or nearly reached the limit of these astonishing reductions of expenditure due to the fall of prices. The

other reductions made by progress in the art of railroad working cannot reasonably be expected to make very rapid progress constantly, as man, though a progressive creature, usually crawls rather than leaps forward, and the variety engaged in railroad service is on the whole very like their fellows in character. Heretofore, like others, we have been premature in fixing a limit to the downward tendency of expenses; it seemed altogether probable that it would be arrested, or its rate slackened, during the year 1877, for the changes in prices during that year were not generally very considerable. But several roads showed very great reductions of expenses in that year, and though several, which are able to use money when they need it and use it on a large scale and are generally pretty good criterions of the natural course of expenses—although several such, we say, did show unchanged or even higher expenses, still there were many whose reports showed great savings, in some cases as great percentages of reduction as in any previous year. A table of 64 roads (mostly Eastern) for the year ending with September, 1877, which we made up and published Feb. 8 last (page 72), showed a decrease of 7.6 per cent. in expenses per mile of road—a saving, we may add, made under the pressure of the very worst year for earnings that we have had, and not including the three prosperous months of the year. Poor's Manual shows for his last year reported, which is called 1877, but for a great many roads extends back into 1876 for three to six or seven months, and for a few forward into 1878 a few months, shows a decrease of 3.7 per cent. in average working expenses per mile. This is partly accountable by the considerable and general reduction in wages in July of last year, and partly, doubtless, by the fact that the full effect of reduced prices of materials is not usually felt in the working expenses until some time after the reduction is made, owing to outstanding contracts, stocks on hand, etc.—the rails contracted for at \$45 may be delivered and laid after the price has fallen to \$40, and so on.

But so far as the published returns enable us to judge, there is at last an arrest to the rapid reduction of working expenses. It is true that the returns of expenses made within the several fiscal years of the companies are quite few in number, but they agree so in tendency as to justify, we think, such a conclusion. We have now reports from fourteen companies for the eight months ending with August last, and of these only four show any decrease in working expenses, and in only one case is this decrease at all considerable—in the others 1½, 3 and 4½ per cent. In the aggregate the fourteen roads expended for working \$13,388,097 this year, against \$12,513,638 last—an increase of \$874,459, or no less than 7 per cent.

We do not mean to say, however, that there has been an increase in the cost of the elements which make up working expenses. Indeed, we do not know that any material largely used is higher except steel rails. It is an arrest in the downward course, not the beginning of an upward one, which seems to be indicated. But the reports of the separate companies need to be examined with intelligence and discrimination, else it would be easy to infer that expenses are actually tending upward. For we find several companies with very large working expenses, as 50 per cent., 20 per cent., 18½ per cent., and others similar, which, though in all cases attending larger earnings, and doubtless larger traffic, are not wholly accounted for thereby; for we see that some of the roads with very larger increases of receipts and expenses have little increase in net earnings. The explanation is, in some and probably many cases, that in 1877, when receipts were very light, the expenditures were kept below what they ought properly to have been, and that the companies have availed themselves of the good returns of this year to put their roads in condition. This explains why there is in so many cases and to so large an extent in some cases an absolute increase in working expenses, amounting on the average, as we have said, for the fourteen roads from which we have reports, only one of which had any considerable increase in road worked, to the very considerable proportion of 7 per cent.

So far as at present appears, then, future reductions in working expenses will have to be made chiefly by improvements in methods and apparatus—a prospect which is agreeable rather than otherwise, if only the downward tendency in rates, which has been more rapid than that in working expenses, is also arrested. Heretofore there seems to have been a race between rates and expenses, in which both made good time, truly, but in which rates was beaten by several lengths. In fact, it was evident that this could not go on much longer, for on many most important roads the margin between cost and receipt had become so extremely narrow that but little further diminution at the old rate was needed to annihilate it. And it is quite possible that such an arrest in the reduction of

rates has taken place. The roads with trunk-line traffic mostly showed some recovery in rates in 1877; but as these roads recently have been engaged during a greater or less part of every year in carrying through traffic for less than cost, their experience may not be that of the average railroad. There is no means of estimating average rates for the country, a single state, or even a single road or group of roads, unless one is familiar at once with the course of the local as well as the through tariffs, and with the relative importance of the different branches of traffic. The state railroad reports, when they appear, give some clue to the average rates, but for these we will have to wait.

As an indication that the general downward movement of prices has ceased, or become slower—that, in fact, we have at last really "touched bottom," and may have some confidence that we shall sink no lower, doubtless railroad proprietors generally, dependent as they are on the prosperity of general industry, will welcome a check to the reductions of expenses which have heretofore been forced upon them as it were by great reductions in the prices of materials and labor. Times will probably be better for the railroads when the prices of what they buy are higher, as then it is that the prices of what they sell will become higher too.

THE EAST-BOUND APPORTIONMENT.

The meeting which the Chicago September meeting declared should be called by the first of October was not actually called till the 10th. And when it was called, although more fully attended by railroad managers, perhaps, than any other held for a similar purpose, it still lacked one representative necessary for the division at Chicago and Cincinnati—that is, for the division of something like half or two-thirds of the business. Considerable progress was made, however; divisions at Peoria, Indianapolis and Louisville were agreed upon (they had been already made at St. Louis), a nearly universal disposition was manifested to make an agreement at some rate or other, and there was, perhaps, less than the usual obstinacy in insisting on "our share," in those cases where the sum of the parts claimed would make a good deal more than the whole. That is, the conviction seems to have become general that there must be a combination if there is to be any profit on through freight hereafter; and some, perhaps, have been led to see that 10 per cent. of the traffic and rates a quarter above the cost of hauling is better than 20 per cent. at bare cost or a loss of five or ten cents a hundred. And there seems to be very good reason for believing that this is really the alternative. The companies have a chance to unite for maintaining rates this fall, and if they do not avail themselves of it the stronger companies seem disposed to pay more attention this winter to securing a big traffic, or rather the biggest part of it, than to making a profit out of it. But however they may be disposed, they very likely will not be able to make any profit out of it if they try, without a combination. Things looked favorable last winter. There was a great deal to carry, and a great deal was carried—much more than ever before, both of grain and provisions, the two great staples of east-bound freight. Yet after navigation closed rates were forced down so that after December very little if anything could have been made on the traffic. And now, when even with a larger grain traffic the railroads are not able to collect as much by a third as they did last year at this time, it is not easy to see how it is going to be any easier to keep up rates when winter comes, without something more effective than the "pressure of traffic," which did not press hard enough to support rates last year.

A perusal of the reports of the Chicago meetings leads to the impression that everything is going on swimmingly. It was nothing against the success of the combination that Mr. King, the representative of the Baltimore & Ohio, was not able to be present, and without the Baltimore & Ohio it was of course impossible to conclude a division of Chicago and Cincinnati traffic, in the former of which the Baltimore & Ohio has a considerable, and in the latter a very large interest.

But the reports, however, did not state what is reported to be the fact, that in the preliminary meetings and negotiations of the roads interested in the traffic out of Chicago, excluding the Baltimore & Ohio, they were unable to come to any terms, but the different parties were inclined to insist on the percentages to which they thought themselves entitled. In this case so far there have been substantially but two parties negotiating—the Vanderbilt interest, with two lines, and the Pennsylvania interest, also with two roads. Give them the whole of the traffic to divide between them, and probably they could agree with little difficulty, but to do so and leave anything for the Baltimore & Ohio

Now, with reference to the distance apart of wheels, Mr. Ramsey grows merry, and asks how you can get 33 in. wheels as near together as you can 24 in. wheels. We admit you cannot, but he has spoken of

trucks with a 3 ft. 1 in. wheel-base for a 3 ft. gauge, and as the radius of a 33 in. wheel, including the flange, is only $17\frac{3}{4}$ in., and $2 \times 17\frac{3}{4} = 35\frac{1}{2}$ in., which would leave an inch and a half clearance between such wheels, there does not seem to be much difficulty in using with 33 in. wheels the same wheel-base which we infer he is using. But this argument of his is another case of lobster-eating. If 33 in. wheels are so bad, and 24 in. wheels so good, why not use the latter on a 4 ft. $8\frac{1}{2}$ in. gauge? The same, too, with locomotives. What is claimed is that with 33 in. wheels as short a wheel-base for trucks can be used as is now employed on narrow-gauge roads, and that if a shorter one is desirable it is possible to use just as small wheels on the standard as on the narrow-gauge. Why is it that narrow-gauge people cannot "grasp this idea?"

With reference to the diagonal slip indicated by 5, 3, and 5', 3', on the diagram published this week with Mr. Ramsey's letter, it was not said that they were equal. On the contrary, it was said that they were "the resultants of the longitudinal and transverse slip, and therefore represent the whole of the two combined." The transverse slip, it was claimed, was the same on both gauges; the longitudinal slip is proportional to the gauge. This being the case, obviously the resultants in the two cases cannot be equal. What was asserted and what is true is that the lateral slip represented by 4, 3, and 4', 3', are equal. As the diagram is drawn, however, this is not quite true, but if the centres of both trucks were on the same centre line between the tracks it would be true that the lateral slip would be the same for each gauge. This could not be demonstrated easily without a diagram, and there is not time to prepare one before this must go to press; but if our correspondent has any doubt about it we will prepare the demonstration and give it in a future number.

Mr. Ramsey says that the flange resistance on curves with a truck having a wide spread is greater than it is if the wheels are nearer together. No one doubts that. When he assumes, however, that because trucks on ordinary railroads having curves of long radii are spread 4 ft. $8\frac{1}{2}$ in. or more, therefore they must be used on all railroads, he is trying to drive us into a position into which we refuse to be driven.

The question under discussion is, how much more would the Bell's Gap Railroad have cost if the rails had been placed 4 ft. $8\frac{1}{2}$ in. apart instead of 3 ft., the road to give the same facilities for its traffic that it gives now. The Bell's Gap road had to be built at as low a cost as possible. Now what is proposed is to build a road on paper to do the same business in the same way over the same ground occupied by that line, and to see how much difference there will be in the first cost of construction and in the subsequent cost of operating it. Mr. Ramsay has said that the first cost will be from one-half to two-thirds that of a broad gauge, and the cost of operation about two-thirds. What we want to show is that the increase in cost of construction and operating, instead of being from one-half to two-thirds, would be hardly appreciable. Whatever it is, however, will be recognized. It of course becomes an important question in such a discussion to determine whether as short curves can be used in the one case as the other. We have shown that much shorter curves have been and are used on standard than on 3 ft. gauge roads. To this Mr. Ramsay says you must use curves which offer exactly the same resistance. We say no; even if they do offer somewhat greater resistance the only effect will be a slight increase in the operating expenses, which will be fully taken into account under that head. Mr. Ramsey says that the spread of trucks on standard-gauge roads is greater than that of those used on narrow-gauge roads, and therefore wants to adhere to existing "facts." We say no; if there is any advantage in using trucks with the wheels near together we will avail ourselves of it on our cheap road, if they can be used, and it has been shown that they can be. If there is any advantage in using small wheels on a cheap road, we will use them if it is possible, and it would be absurd to doubt that it is. In short, what is proposed is to build a narrow-gauge road, all excepting the gauge.

If, on such a line, there is any advantage in using larger wheels than are found on narrow-gauge roads, they also will be used.

It has been purposely assumed in all this discussion that the conditions for each gauge are as nearly alike as possible in order to work out the true principles which govern the resistance on curves of each gauge. But the fact that in order to keep the centre of gravity of narrow-gauge cars low, to secure the requisite stability, smaller wheels must be used than on the standard gauge, has an important bearing on the question of resistance. Thus the wheels ordinarily used on three-foot gauge roads are 24 in. in diameter, whereas

on standard-gauge roads they are 33 in. Mr. Ramsey says it is true that "the journals of the 24 in. narrow-gauge wheels are reduced in diameter in proportion to the reduction in the size of the wheels, the journal friction is about the same as that of the broad-gauge wheels." That may be true, but if the same size of journal that is now used on narrow-gauge axles = $2\frac{1}{2}$ in. in diameter, is used with a 33 in. wheel on a standard gauge, it is plain that the resistance on the latter will be considerably less than on the narrow gauge, where small wheels must be used. It may be said here that axles as small as that cannot be used on a standard gauge, to which we venture to say that it will depend entirely on the weight of the cars to be carried, and also we will point to the fact that twenty or thirty years ago hundreds and thousands of such axles were (and some of them still are) in use on standard-gauge roads. Taking, then, a 24 in. wheel with $2\frac{1}{2}$ in. journal, let us see how much of the resistance is due to the friction of the journal. On page 1,331 of Spon's Dictionary of Engineering, it will be found that from the experiments made by some French engineers the co-efficient of the friction of the journal upon its bearings is given at from 0.019 to 0.026, or a mean of 0.023. In Wood's Treatise on Railroads, third London edition, on page 392, this co-efficient is given at from 0.016 to 0.02396, but his experiments were made many years ago with very light weights on the journals, so that the French experiments are doubtless the most reliable. Taking the co-efficient at 0.023 we would have as the friction at the journal for each ton of weight $2,000 \times 0.023 = 46$ lbs. Of course this friction is overcome in drawing the car by the leverage of the wheel over the axle, and therefore we would have

$$\frac{46 \times 2\frac{1}{2}}{24} = 4.79 \text{ lbs.} = \text{resistance due to friction of journal with 24-in. wheels, and}$$

$$\frac{46 \times 2\frac{1}{2}}{33} = 3.48 \text{ lbs.} = \text{resistance due to friction of journal with 33-in. wheels.}$$

$$1.31 \text{ lbs.} = \text{difference in resistance in favor of 33-in. wheels and the standard gauge.}$$

In the table given last week the difference in the resistance was given in pounds per ton between a standard and a 3 ft. gauge for curves of different radii. In the following table these same figures are also given, with the difference between them and the quantity just calculated.

Table showing the Difference in Resistance in pounds per ton Standard and on a 3-ft. gauge Curves of different radii.

	Curve 100 ft. radius.	Curve 150 ft. radius.	Curve 200 ft. radius.	Curve 250 ft. radius.	Curve 300 ft. radius.	Curve 400 ft. radius.	Curve 500 ft. radius.	Curve 600 ft. radius.
Difference in resistance in favor of a narrow gauge when wheels and journals of the same size are used on each gauge.	3.4	2.3	1.7	1.3	1.1	0.8	0.6	0.5
Difference in resistance between a wheel of 24 and 33 in. and journals of $2\frac{1}{2}$ in. diameter.	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Difference in favor of narrow gauge.	2.1	1.0	0.4	.....	.....	.....	.....	.....
Difference in favor of standard gauge.	.....	.....	.....	0.2	0.5	0.7	0.8	.....

From this table it will be seen that for curves of less than 250 ft. radius the resistance on a narrow gauge with 24-in. wheels is less than on a standard gauge with 33-in. wheels. On curves of 250-ft. radius the resistances under these conditions are the same, and for curves of longer radii than 250 ft. it is less on a standard gauge than on a 3-ft. gauge. It should be kept in mind, too, that the resistance is reduced on a straight line as much as on a curve by the use of the larger wheels. As the shortest curves on the Bell's Gap Railroad are of 250 ft. radius, if the road had been built on exactly the same alignment as it is at present, but of the standard gauge, and with 33-in. wheels instead of 24-in., the resistance of trains would have been the same on those curves as it is now, and on those of longer radii and on the straight part of the line the resistance would have been less than it is now. It is true of course that 33 in. wheels would have cost more than 24 inch wheels, but that difference will be discussed when the subject of cars is taken up. What we want to point out clearly is that the Bell's Gap or any other narrow-gauge railroad could be built of a wide gauge and operated in precisely the same location as it now is in without any difficulty whatsoever.

The difference in cost of construction and of operation will be fully discussed hereafter, if we can obtain the detailed statement of what the road referred to actually did cost.

It has been so continuously asserted that shorter curves can be used with a narrow than with the standard gauge, and it has been so little denied, that the statement has acquired the authority of tradition, and when it is refuted many, who sincerely believe in the narrow-gauge theories, seem to feel very much as some excellent religious people do when some of the traditions of their faith are shown to be unworthy of belief.

Record of New Railroad Construction.

This number of the Railroad Gazette contains information of the laying of track on new railroads as follows:

Rochester & Northern Minnesota.—Extended northward to Pine Island, Minn., 6 miles.

Belleville & Eldorado.—Completed from Eldorado, Ill., west by north to Benton, 32 miles.

Des Moines, Adel & Western.—Completed from Waukee, Ia., west to Adel, 7 miles. It is of 3 ft. gauge.

Spartanburg & Asheville.—Extended from Pace's Gap, S. C., northwest to Flat Rock, N. C., 4 miles. It is of 5 ft. gauge.

Quincy, Missouri & Pacific.—Extended from Kirksville, Mo., west to the Chariton River, 7 miles.

Gulf, Colorado & Santa Fe.—Extended from Arcola, Tex., west 5 miles.

Manchester & Keene.—Extended from Hancock, N. H., west to Harrisville, 9 miles.

St. Paul & Pacific.—The St. Vincent Extension is extended northward 32 miles, to a point 60 miles beyond Crookston, Minn.

This is a total of 102 miles of new railroad, making 1,422 miles completed in the United States in 1878, against 1,548 reported for the corresponding period in 1877, 1,740 in 1876, 903 in 1875, 1,180 in 1874, 2,897 in 1873, and 5,147 in 1872.

WATER RATES have suffered considerable modifications during the past week (ending Tuesday last), the most important changes being in lake rates, which seem to have fallen nearly a fourth. Beginning Wednesday at about 4 cents per bushel for wheat and $3\frac{3}{4}$ for corn from Chicago to Buffalo, they fell off a quarter of a cent the next day and continued at about these rates until Tuesday of this week, when 3 cents is telegraphed as the corn rate. This is a very low rate for the season, and a third less than what was had for a time in August.

Canal rates have fluctuated within very narrow limits and ended about as they began, at $8\frac{1}{4}$ cents per bushel for wheat from Buffalo to New York, $7\frac{1}{4}$ for corn and 5 cents for oats, rail rates remaining as they have been several weeks, $8\frac{1}{2}$ for wheat, 8 for corn and 5 for oats.

Ocean rates have advanced, late shipments being made by steam to Liverpool at $7\frac{1}{2}$ d. per bushel for grain, 3s. per barrel for flour, 5-16d. per pound for cotton, 4s. per barrel for apples, 47s. 6d. per ton for cheese and butter, and 35s. to 37s. 6d. per ton for bacon. Comparatively few charters of sailing vessels to Cork for orders or to any British ports are reported, but there are many to Continental ports. On Tuesday to Bayonne at 7s. per quarter, to Marseilles on cattle at 5s. 9d., to Bordeaux at 5s. 9d., to Lisbon at 16 cents, to Rouen at 5s. 10 $\frac{1}{2}$ d. Generally it appears that it costs about 17 $\frac{1}{2}$ cents a bushel to have wheat carried from New York to a French port by sail, without much regard to where the port may be.

Lake, canal and Buffalo elevating charges now make the cost of getting a bushel of corn from Chicago to New York by water about 11 $\frac{1}{2}$ cents, or at the rate of 20 cents per 100 lbs., against 30 cents by rail. On wheat, however, the water rate is equivalent to about 22 cents per 100 lbs.

THE ATLANTIC & GREAT WESTERN RAILROAD is now the subject of negotiations between its reconstruction trustees and the New York, Lake Erie & Western Company. There is some talk of a lease to the latter, but nothing is yet agreed upon. There is a pressing necessity for the Atlantic & Great Western to do something. There is a first mortgage for \$2,416,300 on the part of the road in Ohio (243 out of the 388 miles from Salamanca to Dayton). The principal of the bonds under this mortgage fell due April 1, 1876. Then the Receiver made a special agreement with these bondholders (most of whom live in Holland), by which they agreed to continue the bonds for three years. This will bring the principal due next April, and if it is not paid, the portion of the road in Ohio will probably fall into the hands of these bondholders, subject to the Receiver's debt. The bonds are at the rate of only \$10,000 per mile of road, which seems a very small amount; but then we must remember that the Atlantic & Great Western does not earn net even the \$700 per mile needed to meet the interest on these bonds; that it is very lightly equipped; that the Receiver's debts are considerable, and must be paid; and that with only about two-thirds of the road in their possession, they would by no means control the line. The Erie can, doubtless, at present make better use of it than any one else, but whether it could make enough out of it to pay all the charges, including interest on this Ohio mortgage, is not quite clear. The English trustees of the Atlantic & Great Western, Sir Charles E. Lewis and Rev. J. Lockington Bates, are now in this country attending to this affair.

A BERLIN HORSE RAILROAD COMPANY had at the close of 1877 no less than 57 miles of tracks and carried 25,500,000 passengers. It, of course, owns a great many lines. There is something like it in this country, namely, the Brooklyn City Railroad Company, which at the end of September, 1877, owned 44 miles of railroad, and during the previous year had carried about 29,000,000 passengers. Neither

has anything like the density of traffic of the Broadway & Seventh Avenue Company in New York, which on its 8 miles of road and 16½ miles of track (two roads) carried during the same year 19,400,000 passengers, and the Sixth avenue, with 8¼ miles of track, carried 17,000,000, while the Third avenue, 80 miles of track, carried no less than 30,700,000. Comparing the companies by putting the average number of passengers carried daily, per mile of track, we have the following:

Great Berlin.....	1,226
Brooklyn City.....	1,806
Broadway & Seventh Avenue.....	3,321
Third Avenue.....	4,306
Sixth Avenue.....	5,323

This is not a fair measure of the traffic of the roads unless the average distance traveled is the same on them all. If all the passengers traveled through, we would measure the traffic by the number of passengers, taking no account of mileage, as it crowds a road of a hundred miles long as badly as it does one a mile long to carry 5,000 over its entire length every day. And there is no doubt that a part of the Third avenue road is crowded much more than the Sixth avenue, or any other road in New York, or it is to be hoped, in the world; but the upper half of that road has a comparatively small traffic, which brings down its average per mile; and the Broadway road also has its average greatly reduced by its Seventh avenue line, which has a much smaller, though still considerable traffic, while the Sixth avenue has everywhere, and at almost all times of day and night, a good traffic—or did before the Metropolitan came to plague it and bless its former patrons, or that part of them who do not live or own real estate on its line.

THE RAILROAD COMMISSIONERS' CONVENTION, called to consider the uniformity in the reports required and in the requirements to be made concerning the keeping of the accounts from which the reports are to be made, is to be held on the 12th of November, instead of the 12th of October, as was erroneously stated in these columns two weeks ago. In this connection we may call attention to a passage in the last report of Mr. W. B. Williams, the Michigan Commissioner, who explains that he did not sign the petition of the commissioners to the several state legislatures recommending a specified form of returns and rules for account-keeping, "because," as he says, "I was not convinced that the form prescribed was the best that might be adopted, and preferred to have a meeting for the purpose of consultation before committing myself to any plan; and also, in order that the plan that should be adopted might be as much as practicable in harmony with the system of accounts now in use by our best railroad accountants, I thought it desirable to wait the action of a meeting of railroad commissioners that might be called for the purpose of such consultation, trusting that at such meeting we might be favored with the views of such accountants." And referring to this meeting called for the 12th of November, he says, "At which time I trust that the auditors of the principal roads will be invited to meet with us." This is substantially what we have recommended, and we hope that it may not be the fault of the railroads (and it is as likely to be theirs as any one's) if there is not a reciprocal exchange of ideas between the representatives of the states and those of the corporations as to the useful, the practicable and the desirable in railroad reports and accounts.

THE ELECTRIC LIGHT seems in Europe to be greatly favored for railroad purposes. First we heard of it as used at the great Paris passenger and freight stations, then in some great workshops, and now comes news of its employment on trains. On the Crown Prince Rudolph Railroad, in Austria, it has been applied as a headlight, "so that the engineman is enabled, even in the darkest night, to see the track ahead to such a distance that he can discover any obstruction in time to stop the train before reaching it" (which, by the way, we do not always find possible in this country by broad daylight). The apparatus used consists of what is known as Schukert's dynamo-electric machine, a small three-cylinder steam engine and an electric lamp. It takes so little room on the locomotive that one not knowing of it would not be likely to notice it, and it is said that those who have had anything to do with its operation are extremely pleased and do not hesitate to say that it answers the purpose perfectly.

Still another train light has been used on another Austrian road, the Emperor Ferdinand Northern, but in this case the electric light is carried on a car, or even removed from the car and set up at a station or other place—as the scene of an accident, a place of taking on or discharging troops in campaigns where there is no station, etc. The apparatus is the invention of Marcus & Egger, of Vienna. The apparatus is carried in a car, and of course the lamp must be connected with it by wire. It would seem to be especially desirable as part of the furniture of a wrecking-car. A powerful light would sometimes multiply several times the effectiveness of a wrecking crew's work at night.

LOW RATES are not confined to America. It is reported that vessels at Calcutta are offering to take cargoes of wheat to England for 15 shillings per ton, which is about 9½ cents per bushel, and a fourth less than the current rate from New York to Liverpool, though the distance is three times as great. Last year the rate was nearly four times as high; but at present there are about 100,000 tons of vessels in Calcutta, and very little grain or other freight to export, and they take grain much as our lake vessels take coal from Buffalo to Chicago, at almost any price, to avoid going back empty. A permanent rate of this kind would make India a most dangerous competitor of this country in the European

grain market, but it can be only temporary, as ocean rates tend to equalize themselves the world over; for if profits are greater on one route than on another, vessels can always, and always will, forsake the latter for the former, in which they have a great advantage over railroads. But of late years it seems that there is no corner of the earth so remote that it cannot supply wheat to Europe, if only it can reach deep water cheaply. San Francisco is about as far from London as you can get (by sail), and yet there have been years when it shipped more wheat to England than any other one port in either hemisphere.

STOCK DIVIDENDS are continued by the Baltimore & Ohio Company. For five years, and until a year ago, this company paid 10 per cent. cash yearly. Last November it divided cash, but only 3 per cent., and now for two half-years it has given stock dividends, each 4 per cent. The repetition of the paper dividend seems to have brought down the market price of the stock, which was quoted just after it was declared at 86 bid and 86½ asked, while three weeks earlier the quotations were 92½ and 93. Thus to the stockholder who wished to realize at this time, the dividend was a positive loss, and not a gain, though the best of all uses has been made of what surplus there may have been by paying off floating debt. But there are not many companies now whose scrip dividends, entirely unaccompanied by cash dividends, would bear so high a price as 86 even. The withholding of cash dividends does not speak very well for the profitability of through traffic for the past half-year; but it did not need this testimony to convince any one who knows what atrociously low rates prevailed until well into August—that is for all but six weeks of the half-year—on east-bound freight. Recently this road has been having an exceptionally large grain traffic, for which it is to be presumed it has received rates that yielded a moderate profit; but six weeks is not long enough to earn a dividend.

HUNGARY has been increasing the number of its government railroads, partly at least by purchasing roads built by companies. It has just published the reports for 1877, showing that its Southern lines, which represent a capital of about \$18,500,000, earned about \$395,500 and cost for working \$459,000; the Northern lines, with a capital of \$31,000,000, earned \$3,000,000 at an expense of \$1,720,000; the Eastern lines earned nearly \$1,400,000 at an expense of \$1,350,000; they have cost about \$47,000,000. The Danube & Drave road, which was in the hands of the government but one-half of the year, and cost it about \$5,500,000, had \$216,000 of earnings and \$211,500 of expenses. Altogether the government's railroad system represented \$102,000,000 of capital, earned gross \$5,011,500, at an expense of \$3,740,500, or 75 per cent., leaving \$1,271,000 of net earnings, which is about 1¼ per cent on the capital invested, and about as bad a result as some of our private corporations can show.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

The Southern Railway and Steamship Association will hold its annual meeting on Thursday, Nov. 7, it having been postponed to that date from Oct. 2, for which it was originally called.

The Committee on Classifications, which was to meet Sept. 30, is now appointed for Nov. 4, in time to prepare a report for the convention.

Dividends.

Dividends have been declared as follows: Panama, 3 per cent., quarterly, payable Nov. 2. Transfer books close Oct. 19.

Baltimore & Ohio, 4 per cent., semi-annual, on the stock of the Main Stem, payable in stock Nov. 15; also 5 per cent. semi-annual, on the Washington Branch stock, payable (in cash) Oct. 16.

Railroad Conventions.

The Narrow-Gauge Convention will meet, pursuant to adjournment, in Cincinnati, Oct. 23.

The annual convention of the Railroad Claim Agents' Association will be held at the Planters' Hotel, St. Louis, Dec. 4, having been postponed to that date from Oct. 15.

East-Bound Pool Meeting.

A very large meeting of representatives of Western railroads was held at the Grand Pacific Hotel, Chicago, Thursday and Friday of last week, Oct. 10 and 11, to take measures for pooling the east-bound through freight business of the most important competing points in the West, viz., Chicago, Peoria, St. Louis, Indianapolis, Louisville and Cincinnati.

All roads immediately concerned in the divisions were represented, except the Baltimore & Ohio, whose Vice-President, Mr. John King, Jr., was unable to be present, but was reported to be decidedly in favor of the proposed combination.

The St. Louis business had already been divided, and the chief business concerned the divisions at the other places. Of these, Chicago and Cincinnati could not be determined in the absence of the Baltimore & Ohio. Peoria, Louisville and Indianapolis were referred each to the several roads which take the freight from them; and these agreed upon divisions, without, we believe, resorting to arbitrations, though not without great concessions by some of the roads, one taking even 25 per cent. less of the total than it claimed to be entitled to and to have received for a long time when competing.

The divisions made so far as reported are as follows:

St. Louis.—(Made some time before the Chicago meeting), 20 per cent. each to the five lines—Chicago & Alton, Toledo, Wabash & Western, Indianapolis & St. Louis, Vandalia Line, and Ohio & Mississippi.

Peoria.—Toledo, Peoria & Warsaw, 20 per cent., Indianapolis, Bloomington & Western, 20; Chicago, Pekin & Southwestern, 20; Chicago, Rock Island & Pacific, 12; Illinois Midland, 5; Pekin, Lincoln & Decatur, 5.

Indianapolis.—Cleveland, Columbus, Chicago & Indianapolis, 35; Pittsburgh, Cincinnati & St. Louis, 34; Indianapolis, Peru & Chicago, 15; Indianapolis, Cincinnati & Lafayette, 10; Cincinnati, Hamilton & Indianapolis, 6.

The Louisville divisions, though made, are not reported, and these for Peoria and Indianapolis given above have not been announced authoritatively, but are so reported in reports of the meeting in Chicago papers.

Mr. M. H. Smith, until within a few days previous to the meeting General Freight Agent of the Louisville & Nashville Railroad, of great experience in his department, and esteemed by freight men to be an exceptionally able and upright man, has been asked to act as Commissioner for Indianapolis, Louisville and Cincinnati, and will in all probability accept.

Mr. John H. Stead, formerly of the Cincinnati, Sandusky & Cleveland road, has been chosen Commissioner for Peoria. An important step agreed upon was to make no contracts for rates for more than ten days in advance, and make ten days' public notice of all such changes.

No meeting for the arrangement of Chicago and Cincinnati divisions has yet been called, but one probably will be soon. President Garrett arrived from Europe last Wednesday, and his presence may facilitate negotiations.

General Time Convention.

The General Time Convention met in Chicago, Oct. 10. Mr. E. S. Flint, of the Cleveland, Columbus, Cincinnati & Indianapolis, presided, and Mr. W. F. Allen, of the Official Guide, was Secretary. The meeting was short, and transacted only the usual routine business. On recommendation of the committee appointed for the purpose, it was resolved to adopt last winter's schedule for through trains, with a few unimportant modifications.

Central Association, General Passenger & Ticket Agents.

This association has been organized in accordance with the resolutions passed at the recent convention of the General Passenger & Ticket Agents' Association, advising the formation of district associations. At a meeting, held in Chicago, Oct. 11, a constitution was adopted, and a partial organization completed. It was decided to hold monthly meetings hereafter. The Central Association is intended to include the States of Ohio, Indiana, Michigan, Illinois, Wisconsin, Iowa and Minnesota.

Railway Passenger and Freight Conductors' Mutual Aid and Benefit Association.

The fourth annual convention of this association was held at the Tremont House, Chicago, Oct. 8. A large number of delegates was present, and Mr. George Hewitt, First Vice-President, occupied the chair, President Sherman being unavoidably absent.

Mr. John T. West, of Minneapolis, Minn., delivered the annual address, which was an interesting statement of the plan of insurance and the benefits claimed for it. Addresses were also made by Col. W. R. Steele and Mr. L. D. Latham.

The Secretary reported 1,029 members since organization. Of this number there had been 451 delinquents; 25 deaths; 6 cases of total disability, and 9 members had withdrawn, leaving 1,138 members on Sept. 30, 1878. The financial statement for the year ending Sept. 30 was as follows:

Cash on hand, Oct. 1, 1877.....	\$264.87
Received from nine assessments.....	22,281.50
" " back dues, interest, new members, etc.	942.40
Total.....	\$23,488.77
Paid for nine deaths and disabilities.....	\$22,091.50
Printing, salaries, medical examinations, etc.....	1,217.95
	23,309.45

Cash balance, Oct. 1, 1878..... \$179.32

On the following day some slight changes were made in the constitution. Resolutions were passed approving the plan for a home for disabled or superannuated conductors. A visit was received from the Grand Division of the Conductors' Brotherhood. After electing officers, and passing the usual resolutions of thanks, the Association adjourned.

ELECTIONS AND APPOINTMENTS.

Belleville & Eldorado.—The officers are: W. R. Ward, President; G. B. Hablitt, Secretary; Z. Hickman, Treasurer. The road is worked by James Hill & Co., Contractors, whose address is at Eldorado, Ill.

Central Branch, Union Pacific.—Mr. E. S. Wills, late General Freight Agent is appointed General Agent. Mr. M. A. McLaughlin, General Passenger Agent, is appointed General Freight Agent also.

Chicago, Milwaukee & St. Paul.—Mr. Joseph R. Hixon has been appointed General Agent for New England, in place of Elbridge E. Hill, deceased. His headquarters will be in Boston.

Chicago, Rock Island & Pacific.—Mr. Wm. F. Lee is appointed Roadmaster of the Keokuk & Des Moines Division. He has been for some time Roadmaster of the St. Louis, Keokuk & Northwestern.

Chicago & Southwestern Indiana.—The first board of directors is as follows: John Adams, G. W. Cass, Jr., H. H. Ciley, R. P. Conger, Henry Fuller, A. Gregory, A. B. Kile, W. F. Singleton, George T. Williams. Office in Chicago.

Cincinnati, Effingham & Quincy Construction Co.—The officers are: President, W. G. Press, Chicago; Secretary, Alfred Baltzell; Treasurer, E. O. Lanphere, Chicago.

Concord & Portsmouth.—At the annual meeting in Manchester, N. H. recently, the following directors were chosen: Stephen Kenrick, S. N. Bell, John J. Bell, B. B. Walker, J. J. Pickering. The board elected Stephen Kenrick President. The road is leased to the Concord Company.

Cumberland Valley.—At the annual meeting in Harrisburg, Pa., Oct. 7, Mr. Thomas B. Kennedy was re-elected President, with the following directors: Frederick Watts, Carlisle, Pa.; Daniel O. Gehr, John Stewart, Chambersburg, Pa.; Josiah Bacon, Thomas A. Biddle, Strickland Kneass, Wistar Morris, George B. Roberts, Thomas A. Scott, Edmund Smith, Philadelphia.

Denver & Rio Grande.—Mail accounts confirm the appointment of Mr. D. C. Dodge (General Freight and Passenger Agent) to be General Superintendent. Mr. W. W. Borst continues to be Superintendent under Mr. Dodge. Mr. W. M. Hastings also continues to be Assistant General Freight Agent, and Mr. W. G. Brown (late Agent in Denver) is appointed Assistant General Passenger Agent.

Gulf, Colorado & Santa Fe.—At the annual meeting in Galveston, Tex., recently, the following directors were chosen: M. Kopperl, James Sorley, W. L. Moody, H. Rosenberg, R. S. Wills, J. E. Wallis, Julius Runge, H. Kemper, C. W. Hurley, Walter Gresham, H. Marwitz, N. N. John, C. E. Richards.

Lake Simcoe Junction.—At the annual meeting in Toronto, Ont., recently the following directors were chosen: Col. Tisdale, R. T. Livingston, David Morrison, Wm. R. Bell, John H. Beatty, R. L. Denison, J. G. Denison, A. F. Camp-

bell, J. N. Blake. At a subsequent meeting of the board, Mr. J. N. Blake was reelected President and Col. Tisdale Vice-President.

Louisville & Nashville.—The following circular from the office of President and General Manager E. D. Standford, is dated Oct. 8:

"Mr. G. C. Breed is hereby appointed my assistant in all duties pertaining to the general management of this line, with title of Assistant General Manager, to take effect this day."

Mr. Breed has been for some time Purchasing Agent, and for two years past he has also been Secretary to the President. He has also, in the course of his railroad career, served as chief engineer, general freight agent and auditor, and so has a personal familiarity with the details of most departments of railroading.

Minneapolis & St. Louis.—At the annual meeting in Minneapolis, Minn., Oct. 8, the following directors were chosen: J. S. Pillsbury, J. K. Siddle, C. C. Washburn, H. T. Welles, R. D. Langdon, F. Steele, John Martin, R. J. Baldwin, W. D. Washburn, C. J. Martin, A. H. Bode, W. D. Hale, R. P. Russell, C. H. Pettit, Paris Gibson, W. W. McNair, Isaac Atwater. The only new director is Mr. Siddle, who succeeds Levi Butler, deceased.

Ohio & Mississippi.—At the annual meeting in Cincinnati, Oct. 10, the following directors (one-fourth of the board) were chosen: C. A. Beecher, St. Louis; W. T. McClintick, Cincinnati; R. L. Cutting, Jr., New York. Messrs. Beecher and McClintick are reelected, and Mr. Cutting succeeds Ossian D. Ashley.

Order of Railway Conductors.—This Association, late the Conductors' Brotherhood, at its annual convention in Chicago last week, elected the following officers: Past Chief Conductor, Wm. L. Collins; Grand Chief Conductor, John B. Morford, New York; Assistant Grand Chief Conductor, Wm. Kilpatrick, Chicago; Grand Secretary and Treasurer, W. P. Daniels, Binghamton, N. Y.; Grand Senior Conductor of Ceremonies, H. S. Chapman, Buffalo, N. Y.; Grand Junior Conductor of Ceremonies, F. E. Ketchum, Waterloo, Ia.; Grand Inside Sentinel, L. R. Carver, Des Moines, Ia.; Grand Outside Sentinel, M. Long, Cleveland, O.; Grand Executive Committee, J. H. Kimball, Fort Jervis, N. Y.; C. S. Wheaton, Elmira, N. Y.; S. Herman, Omaha, Neb.

Pennsylvania.—Mr. James McCrea, late Superintendent of the Middle Division, is appointed Superintendent of the New York Division, in place of G. W. Barker, deceased. Mr. S. M. Prevost, late of the Bedford Division, is appointed Superintendent of the Middle Division, in place of Mr. McCrea.

Portland & Rochester.—At the annual meeting in Portland, Me., recently, the following directors were chosen: H. J. Libby, John Lynch, Charles McCarthy, Jr., W. G. Ray, J. S. Ricker, Frederick Robie, A. K. Shurtleff, E. G. Wallace, John A. Waterman, George P. Wescott, Wm. R. Wood. Mr. A. Horsey has been appointed General Freight Agent of this road from Oct. 1. All matters pertaining to freight rates should be addressed to him, at Grand Trunk Building, Commercial street, Portland, Me.

Railway Passenger & Freight Conductors' Mutual Aid & Benefit Association.—At the annual meeting in Chicago, Oct. 9, the old officers were reelected, as follows: President, James G. Sherman, Detroit; Vice-Presidents, George Hewitt, A. M. Putnam, Chicago; Secretary and Treasurer, Charles Huntington, Chicago.

Western Union Telegraph.—The new board has elected Dr. Norvin Green, President; Augustus Schell, Harrison Durkee, Anson Stager, Hamilton McK. Twombly, John Van Horne, Vice-Presidents; A. R. Brewer, Secretary; R. H. Rochester, Treasurer.

Wisconsin Central.—Mr. Robert W. Maguire is appointed Cashier and Paymaster, in place of Eugene Low and I. B. S. Isted, resigned.

PERSONAL.

—Mr. David D. Colton, Financial Director of the Central Pacific and Vice-President of the Southern Pacific, died suddenly in San Francisco, Oct. 10. He was born in Maine in 1832 and went to California in 1850, where, after unsuccessful ventures as a miner and lumberman, he settled down to the practice of law in San Francisco. Here he did well, and increased his property largely by successful investments in mining property. In 1867 he became connected with the Central Pacific, and has since taken a prominent part in the management of that company and its allied roads.

—Mr. A. J. Warner, formerly President and afterwards Receiver of the Marietta, Pittsburgh & Cleveland road, was last week elected to Congress from the Thirteenth Ohio District.

—A Chicago dispatch of Oct. 11 reports that Charles W. Angell, the defaulting Secretary of the Pullman Palace Car Company has been arrested at Norfolk, Va. Later advice states that the man arrested was not Angell, although somewhat resembling him in appearance.

—Commodore C. K. Garrison, President of the Missouri Pacific Company, and a large owner of other railroad stocks and of steamship property, was married in New York, Oct. 10, to Miss Letitia W. Randall, of St. Louis. This is the Commodore's second matrimonial venture. It is his son who is President of the Metropolitan Elevated Railway.

TRAFFIC AND EARNINGS.

Water Rates.

Ocean rates at San Francisco are reported still lower, and charters for wheat have been made as low as 30c. per ton [25 cents per bushel] to Liverpool direct and 40c. to Cork for orders. A year ago rates were 55c. to 60c. On Oct. 5 there were reported vessels in port disengaged with a total tonnage of 76,181 tons; in port loading with wheat a total tonnage of 38,004 tons. And yet the California wheat exports are the largest ever known.

Provision Exports.

Exports of pork products from the United States since the beginning of the last winter packing season, that is, from Nov. 1 to Oct. 5, have been, in tons:

	1877-78.	1876-77.	Increase.	P. c.
Pork.....	30,977	27,797	3,180	11.4
Bacon, etc.....	278,895	213,824	65,071	30.4
Lard.....	152,035	109,320	42,715	39.1
Total.....	461,907	350,941	110,966	31.6

The total this year was equivalent to 148 car-loads daily every working day of the year; and most of it was brought from the West to the Atlantic ports by rail.

Cotton.

Receipts for the week ending Oct. 11 and for the crop year from Sept. 1 to that date have been, in bales, for five years:

	1878.	1877.	1876.	1875.	1874.
Week.....	148,158	108,264	136,074	137,429	121,084
Since Sept. 1.....	525,906	262,375	480,205	433,237	372,398

Receipts for the week are 8 per cent. greater and for the six weeks 9 per cent. greater this year than in any of the four previous years. Exports for the six weeks have been 121,541 bales, against 69,669 last year.

Railroad Earnings.

Earnings for various periods are reported as follows:

	1878.	1877.	Inc. or Dec.	P. c.
Nine months ending Sept. 30:				
Ind., Bloom. & West.	\$951,928	\$916,007	I.	\$35,921 3.8
Int. & Gt. Northern.	948,058	1,002,364	D.	54,306 5.4
St. L., Alton & T. H.	347,034	307,236	D.	20,212 5.5
St. Louis & South-eastern.	849,906	798,364	I.	51,542 6.5
Eight months ending Aug. 31:				
At., Miss. & Ohio.	\$1,044,263	\$1,073,698	D.	\$29,435 2.7
Net earnings.....	283,968	288,781	D.	4,783 1.7
Dakota Southern.	138,088	109,023	I.	29,065 26.7
Net earnings.....	62,250	806,116	D.	72,923 8.4
Int. & Gt. Northern.	783,193	806,116	D.	47,581 31.6
Net earnings.....	198,284	150,803	I.	245,128 12.7
Kansas Pacific.	2,175,360	1,930,232	I.	15,531 2.1
Net earnings.....	772,436	2,007,405	D.	236,884 11.8
Mo., Kansas & Texas.	1,770,521	2,007,405	D.	236,884 11.8
Net earnings.....	278,455	749,354	D.	470,899 62.8
Memphis, Paducah & Northern.	131,476	119,824	I.	11,652 9.7
Net earnings.....	28,242	37,089	D.	8,847 23.8
St. Louis, Iron Mt. & Southern.	2,516,912	2,583,626	D.	66,714 2.6
Net earnings.....	942,064	1,117,748	D.	175,684 15.7
St. Paul & Sioux City.	378,297	287,506	I.	90,791 31.6
Net earnings.....	135,112	68,608	I.	66,504 96.9
St. Paul & Northern.	235,730	158,598	I.	77,132 48.6
Net earnings.....	61,236	18,753	I.	42,483 226.6
Scioto Valley.	174,573	.....	.....	.....
Net earnings.....	100,034	.....	.....	.....
Seven months ending July 31:				
Atchison, Topeka & Santa Fe.	\$1,838,136	\$1,223,813	I.	\$614,323 50.2
Net earnings.....	827,281	519,264	I.	308,017 59.3
Grand Rapids & Indiana.	669,687	568,660	I.	71,027 11.9
Net earnings.....	79,799	175,418	D.	95,619 54.5
Month of September:				
Ind., Bloom. & West.	\$121,720	\$121,009	D.	180 0.2
Int. & Gt. Northern.	154,865	136,248	I.	18,617 13.7
St. L., Alton & T. H.	46,600	50,101	D.	3,441 6.9
St. Louis & South-eastern.	107,918	108,696	D.	778 0.7
Scioto Valley.	29,153	17,587	I.	11,566 65.7
First week in October:				
Denver & Rio Gr'de.	\$26,108	\$18,542	I.	\$7,566 40.9
St. Louis, Iron Mt. & So.	145,000	125,065	I.	19,935 15.9
Week ending Oct. 4:				
Gt. Western, of Can.	\$102,048	\$122,119	D.	\$20,071 10.4
Week ending Oct. 5:				
Grand Trunk.	\$194,165	\$223,086	D.	\$28,921 13.0

NOTE.—Grand Rapids & Indiana and Missouri, Kansas & Texas expenses this year include heavy payments for new steel rails and other renewals.

Coal Movement.

Anthracite tonnage for the week ending Oct. 5 was: 1878, 424,500; 1877, 352,726; increase, 71,774 tons, or 20.3 per cent.

The Engineering and Mining Journal of Oct. 12 says: "As we go to press we learn from entirely reliable sources that the Lehigh operators have decided not to agree to the extension of the combination to April 1. The result of this decision, should it not be altered before the meeting of the Board of Control on Tuesday next, will be the practical disruption of the combination at that time. The other members, and notably the Reading, intimate in the plainest manner that if the compact is to end on the 1st of January, they may as well consider it now ended, for prices would at once decline."

The meeting of the Anthracite Board of Control was held in New York, Oct. 16, with a full attendance. The board sat with closed doors, but at the close of the meeting it was announced that Messrs. Thomas Dickson and Franklin B. Gowen had been appointed a committee to call a conference of representatives of the various coal interests to agree upon a plan for united action for 1879. The board also agreed to add 600,000 tons to the October production, making it 1,800,000 tons and fixed the November production at 1,900,000 tons.

The coal tonnage of the Pennsylvania Railroad for the nine months to the end of September was as follows:

	1878.	1877.	Inc. or Dec.	P. c.
Anthracite.....	504,461	491,155	I.	13,306 2.7
Semi-bituminous.....	1,108,433	1,214,855	D.	46,422 3.8
Bituminous.....	1,210,084	1,071,855	I.	138,229 12.9
Coke.....	776,480	501,146	I.	275,344 54.9
Total.....	3,659,468	3,279,011	I.	380,457 11.6

Coal trade of the New York state canals to the end of September was:

Anthracite tonnage for the week ending Oct. 5 was: 1878,	424,500; 1877, 352,726; increase, 71,774 tons, or 20.3 per cent.
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The decrease in face of a longer period of navigation, the canals having opened nearly three weeks earlier this year than last.

Grain Movement.

For the week ending Oct. 5, receipts of grain, in bushels, at the eight Northwestern markets, have been for the past six years:

	1878.	1877.	1876.	1875.	1874.	1873.
6,516,744	6,886,166	6,476,942	5,077,522	4,555,242	3,511,049	.....

Last year the receipts were next to the largest of the year. This year the receipts for the week are much larger than for either of the two preceding weeks, but were exceeded in the last three weeks of August and the first week of September.

The shipments of these markets for the same week have been:

	1878.	1877.	1876.	1875.	1874.	1873.
5,623,837	6,141,867	4,690,252	4,193,258	4,347,296	4,441,081	.....

The shipments this year are larger than for three weeks previous, and have been exceeded but four weeks this year.

Of these shipments the number of bushels and the percentage of the total shipped by rail were:

	1878.	1877.	1876.	1875.	1874.	1873.
1,195,641	924,511	1,650,858	1,314,614	422,841	610,568	.....
20.8 p. c.	15.0 p. c.	35.4 p. c.	31.3 p. c.	9.7 p. c.	13.8 p. c.	.....

Receipts at the seven Atlantic ports for the same week have been:

	1878.	1877.	1876.	1875.	1874.	1873.
6,751,531	5,828,503	4,083,200	3,179,589	2,894,200	4,656,417	.....

The receipts this week are larger than for the two weeks

previous, and have been exceeded four weeks this year, but never in any previous year.

Of the receipts this year, 58.5 per cent. arrived at New York, 14.4 at Baltimore, 13.7 at Philadelphia, 7.8 at Montreal, 3.1 at Boston, 2.4 at New Orleans and 0.1 per cent. at Portland.

There seems to have been a notable recovery in the week reported from the depression of the two weeks preceding. And there is some change in the source of supply. Chicago for this week received about one-half of the whole and Milwaukee again stands second, after having been for many weeks exceeded by St. Louis, Detroit and Toledo. For the week in question wheat was 47 per cent. of the receipts, and in this again Chicago led, though not so decidedly, receiving 30½ per cent. of the whole, against 20 per cent. at Milwaukee, 17½ at Detroit, 16½ at Toledo, 12 at St. Louis and 3½ at Duluth.

For the week ending Oct. 14 receipts and shipments at Chicago and Milwaukee were:

	Receipts.	Shipments.
Chicago.....	2,931,790	3,287,235
Milwaukee.....	757,400	757,900

The receipts are considerably smaller and considerably greater than for the previous week.

Receipts and shipments at Buffalo for the week ending Oct. 14 were:

	Receipts.	Shipments.
By rail.....	406,300	707,898
By water.....	2,630,090	2,795,136

Total..... 3,036,390 3,503,024

Receipts are smaller but shipments larger than for the preceding week.

Receipts at four Atlantic ports for the week ending Oct. 14 have been:

New York.....	4,163,330	Baltimore.....	831,930
Philadelphia.....	694,100	Boston.....	553,518

Of the receipts at New York, 913,425 bushels, or 21.9 per cent. arrived by rail.

The business of the week taken altogether is a very heavy one, though it has been exceeded several times this year.

Competition in the South between the Lines from the East and those from the Northwest.

In accordance with resolutions passed at a convention of the Southern Railway and Steamship Association in Atlanta early in September, Commissioner Virgil Powers issued instructions to Green Line roads to put into force Oct. 1 from the West to territory in the South where the roads from the East compete with them the rates of Dec. 24, 1877, except that stores and store furniture at owner's risk, printing and wrapping paper and canned goods are transferred from the fourth to the third class.

The resolution under which this order is issued declares it to be the General Commissioner's duty to protect the Green Line roads in the business peculiar to the Northwest and to protect the Eastern roads in the cotton and other business peculiar to them, and to maintain equal rates on business common to both sections, to which belong the articles named in Mr. Powers' circular. It also prescribes that differences between competing lines under this rule must be settled by the Association's rules, and directs the General Commissioner to enforce his decisions and the arbitrations of differences "promptly with all the powers of the Association, including non-intercourse if necessary." At that time a Committee on Rates and Divisions of Business was appointed, to report at the annual meeting, then to be held Oct. 2, but since postponed till Nov. 7.

RAILROAD LAW.

Foreclosures in United States Courts and State Redemption Laws.

In the United States Circuit Court at Chicago decision was given last week, as already noted, on the application to set aside the decree of foreclosure against the Indianapolis, Bloomington & Western road, on the ground that no provision was made in the decree for redemption of the property according to the statutes of Illinois and Indiana. The decision of the court is thus reported by the Chicago Inter-Ocean:

"The question was: Does the late decision of the United States Supreme Court, in the Brine case, as to redemption, apply to the sale of railroad property. The final decree of foreclosure of July, 1877, directed a sale of the property of the company and its component companies. The ninth clause of the decree directed a sale without appraisal or redemption. The sale was advertised for Oct. 1, but in view of the uncertainty of the law, the sale was postponed and the master was directed to advertise the property for sale, subject to the appraisal and redemption laws of Indiana and Illinois, in pursuance of the Brine decision.

"The court then reviewed the Indiana statutes on the subject of the sale of property. These provided for a sale of personal property for cash, and of real estate subject to appraisal and redemption. Various statutes provided for the sale of railroad property in entirety, including the franchise, which was good in the hands of purchasers for the purpose of reorganization. Hence, the court thought that it never was the intention of the Legislature to apply the redemption laws to the case of public corporations, as it would destroy the value of the mortgage securities. A decision of the Supreme Court of the state in the case of the sale of a turnpike road was in point as holding that the redemption statutes did not apply. As to the laws of Illinois, the redemption law of 1841 was in the revision of 1845 and in the revised statutes. At the time of the passage of the first law, probably there was not a mile of railroad in existence in the state. The conclusion was that this law did not contemplate railroad property, and in this conclusion Judges Drummond and Blodgett concurred. The master would, therefore, be directed to execute the decree and sell without reference to the redemption laws of Indiana and Illinois."

Railroads on Public Streets and Municipal Regulations.

The Supreme Court of the United States has just given its decision in the case of the Richmond, Fredericksburg & Potomac Company against the City of Richmond, appeal from the Virginia Court of Appeals. The suit was originally brought by the city to recover penalties imposed upon the company for running locomotives through Broad street, in violation of a new city ordinance prohibiting their use on the street. The decision may be summed up as follows:

1. The original location of the road through the street being made by express permission of the city, with the condition that it should not be held to part with any of its municipal powers further than necessary to allow the construction of the road and depot, left the city with the usual police powers and control over the road. The power to establish police regulations authorizes municipal corporations to prohibit the use of locomotives on public streets, unless a prior vested right can be clearly shown.

2. Appropriate regulation of the use of property is not taking property within the meaning of the constitutional provision.

3. The exclusion of locomotives from one street while they

are allowed to run on others is not necessarily an unequal application of law. Due regard must be had to local circumstances, and it is the duty of a city government to make such necessary discriminations as may be needed.

Action on Overdue Coupons.

In *Welsh* against the St. Paul & Pacific, First Division, on appeal, the Minnesota Supreme Court last week decided as follows, affirming the judgment of the lower court:

The findings of the court as to the identity of the coupons sued on with those introduced in evidence, and upon which a recovery was had, and that they were issued and negotiated in connection with the bonds referred to in the complaint, as therein alleged, considered and sustained upon the evidence and admissions in the pleadings. A corporation created and organized under and pursuant to an agreement authorized and sanctioned by competent legislative authority is bound by its provisions, and all liabilities it imposes in favor of third parties. A provision in such agreement that the company shall assume all liabilities, of every name and nature, relating to certain lines of railroad transferred to it by such agreement, includes debts contracted in the construction of such lines of road and secured thereon by a trust mortgage, and the company is liable for their payment to the holders thereof. The pending of an action for the foreclosure of a mortgage given to trustees of a railroad company upon its road and franchises as security for an issue of negotiable coupon bonds, and containing the usual powers found in such instruments authorizing them upon default in the payment of any installment of interest coupons, to declare the bonds due, and thereupon to proceed to realize upon the security by foreclosure or otherwise, as prescribed in the mortgage and to apply the proceeds, but with no further or other power, or interest in respect to the obligations or their collection, is no bar to an action in favor of any holder or owner of any such overdue coupons, to recover the amount due thereon by payment and execution. An action for foreclosure by the trustees in such a case is a proceeding in the nature of a remedy *in rem* and not *in personam*. The trustees have no right to a personal judgment to be enforced by execution for any deficiency in the indebtedness left after exhausting the securities, and applying their proceeds. The effect of the judgment rendered in such an action is to determine the amount of the mortgage debt, so as to know how much of the security will be required to satisfy the same. The provisions of section 30, title 2, chapter 81, general statutes, in reference to issuing an execution for the balance of any of the debt, are inapplicable to a case of this kind. Interest is recoverable upon overdue coupons, payable to bearer at a particular time and place from and after their maturity. Judgment affirmed.

The Tanner Brake Cases.

In the cases of *Sayles* against the Illinois Central, *Lake Shore & Michigan Southern*, and the *Chicago, Burlington & Quincy* Companies for infringement of the Tanner brake patent, the United States Circuit Court in Chicago last week rendered a decision to the following effect: "1. That a court of equity has jurisdiction to direct an accounting of infringers' profits, regardless of any prayer for injunction, on the ground that the infringer is a trustee. 2. That the Federal statute of 1870 contemplates the first term and the extended term of a patent as being separate, and provides that suits under either of them must be brought during the existence of the term or extension respectively, or within six years from the expiration thereof. 3. That the state statutes of limitation have no application in respect of rights of action under patents for inventions. 4. That the title of Thomas Sayles to the extended term of the Tanner patent is shown by the pleadings to be good. 5. That the extended term of the Tanner patent is valid, notwithstanding it was granted upon the application of the inventors only without Tanner, the patentee, joining therein, and notwithstanding that the original patent was granted to an assignee of the inventor. 6. That none of the rights of action sued upon are state. 7. That the allegations of the bill are sufficient to hold the *Lake Shore & Michigan Southern Railway Company* for the infringements committed by its constituent corporations."

OLD AND NEW ROADS.

Adamstown Branch.—It is proposed to build a railroad from Adamstown, in Lancaster County, Pa., northward about five miles to Fritztown, on the Reading & Columbia road. The project also includes an extension from Fritztown northward through the Spring Brook and Tulpehocken valleys to Bernville and Strausstown, about 15 miles.

Asheuelot.—A controlling interest in this road has been bought by some large stockholders in the Connecticut River Company, who are said to have paid \$150,000 for it. The road is 24 miles long, from Keene, N. H., to South Vernon; for a number of years it was held by the trustees for the bondholders, and by them leased to the *Cheshire Railroad Company*. About a year and a half ago, however, it was redeemed by the stockholders, who then leased it to the Connecticut River Company, which now operates the line.

Atlantic & Great Western.—The *Meadville (Pa.) Crawford Journal* of Oct. 30, says: "Mr. Chas. Latimer, Chief Engineer of the Atlantic & Great Western Railroad, has made a detailed report of the extent of the damages and estimate of the cost for repairing, and personally informed us that the flood caused 55 breaks and washouts. Nineteen on the Second Division and 11 on the Mahoning Branch were sufficient to cause a stoppage of trains. The Warren bridge on the Mahoning Branch, 210 feet long, was washed out, leaving two spans and was temporarily repaired in 27 hours. Four Howe truss bridges over Yankee Run averaging over 106 feet in length and all within a distance of 2½ miles, were washed out."

"The engineers have been over the road, and have made a careful estimate of the losses, which are placed at \$60,000. It will cost \$80,000 to repair them, as the difference in the value of the old and new bridges will be \$20,000."

In the New York Supreme Court at Buffalo last week the United States Rolling Stock Company's suit against this road came up on the motion for an order directing the Receiver to pay the United States Rolling Stock Company the sum of \$280,899.73 and accrued interest, and to have the complaint and order of the Supreme Court of New York amended. Some argument was heard, and a further hearing was set for the next term of court.

Baltimore & Elysville.—This company has filed articles of incorporation in Maryland to build a suburban road about 10 miles long, from Baltimore westward through Catonsville and Ellicott City to Elysville. The capital stock is to be \$250,000, and the incorporators are Charles S. Harrison, James B. Waters, and Wm. R. Warden, of Baltimore, and Charles Henry Roney and James H. Boggs, of Philadelphia.

Baltimore & Ohio.—At the regular monthly meeting of the board last week, it was resolved to declare the usual 5 per cent. cash dividend on Washington Branch stock. It was also resolved to declare a 4 per cent. dividend on the Main Stem stock, but to make it payable in stock, which will represent earnings applied to reduce the floating debt.

Bellaire & Southwestern.—Tracklaying is now pro-

gressing steadily on the extension of this road from Wegge Mills, O., southwest to Woodfield, about 34 miles. The contractors promise to have the work done by Jan. 1, if the iron is delivered fast enough.

Belleville & Eldorado.—This road is reported completed from Eldorado, Ill., on the Cairo & Vincennes road, west by north to Benton, 32 miles, leaving 18 miles to be finished to reach Duquoin, where it will connect with the St. Louis, Alton & Terre Haute's Belleville Line. No work, however, is now in progress between Benton and Duquoin, and the construction of that section depends upon action to be taken with regard to a donation from Franklin County. The road has been built and is now worked by James Hill & Co., contractors. It connects with the St. Louis & Southeastern at Eldorado, and crosses the Cairo & Vincennes near that place.

Brooklyn & Rockaway Beach.—This company has filed a map of its proposed line, which is to run from the New York & Manhattan Beach road at East New York to Rockaway Beach, about eight miles. Nearly 4½ miles of this distance the road is to run on piles across the shallow portion of Jamaica Bay.

Buffalo & New York Pipe Line.—The *Buffalo Commercial Advertiser* of Oct. 9 says: "An important question with reference to the laying of pipe lines in the state is now before the Supreme Court, Special Term, in session at Albion, Judge Barker presiding. It came up in this way. Mr. Hyatt, of New York City, Attorney for the Buffalo & New York Pipe Line Company, made a motion on the 7th to appoint commissioners to appraise lands taken by the company. Mr. E. R. Bacon, of this city, of the firm of Sprague, Gorham & Bacon, appeared on behalf of the Erie road and opposed the motion. He moved that the matter be referred to a referee to take proof upon the question whether the Pipe Line Company proposed to take the lands for public or for private purposes. This request Judge Barker denied, and Mr. Bacon objected to the granting of the motion upon the ground that the act under which the company claimed to be organized was unconstitutional. This is the first time this question has come before the courts, and its decision, of course, is of vital importance to the Pipe Line Company. The attorneys were given leave to submit briefs upon the motion, and Judge Barker reserved his decision."

Central Pacific.—A San Francisco dispatch of Oct. 15 says: "In the case of Gallatin against the Central Pacific Railroad Company, being an action to restrain the defendant from paying a dividend of 1 per cent. on its capital stock, on the ground that under the funding act of 1878, the company should pay 5 per cent. of its earnings into the United States Treasury as a sinking fund, Judge Sawyer in the United States Circuit Court, yesterday morning overruled the demurrer, and the defendant not appearing, gave judgment for the plaintiff. The case now goes to the United States Supreme Court."

Chicago & Lake Huron.—The litigation over this road came up before the United States Circuit Court, at Detroit, Oct. 10, on a petition from holders of Receiver's certificates, asking that the road may be sold to satisfy their claims, there being no present prospect of its sale under the decree of foreclosure. There were present counsel representing the Union Trust Company, trustee, the certificate holders, the Albany bondholders, the Amsterdam bondholders and the Chicago & Northeastern Company. The Court (Judge Baxter) said it had been running this road about two years through and had run it into debt nearly \$1,000,000. The Court was convinced that it could not manage the business of running a railroad with success, and the sooner it got it off its hands the better. Suggestions as to the proper steps to be taken were in order.

On the part of the bondholders it was objected to the petition that the validity of part of the certificates was disputed, and that there should be an examination before their payment was provided for. Some other objections were made and the case continued to the following day, when Judge Baxter said the Court was very anxious to have the matter disposed of as soon as possible, but could not see its way to order an immediate sale of the road under existing circumstances. The management of the road in the hands of the Receivers had been far from satisfactory, and the Court had decided to appoint Henry M. Duffield as attorney to represent and advise the Receiver. He had selected him as entirely disinterested in the case, and he would be charged with investigating and reporting upon whose authority the certificates of indebtedness, issued by the Receiver, were issued, whether issued in pursuance of authority granted in good faith, and whether in his opinion any portion of them are for any cause invalid. He will further ascertain if there are any other outstanding liabilities against said Receiver, and if so, how much and to whom due. He will also report the gross earnings of the road while in the hands of the Receiver, and how the same have been applied. The Attorney is now vested with all the powers of a special master, and shall have free access to all books and other papers of said Receiver. If he finds that any moneys have been misapplied he shall report by whom, and recommend such prosecution, either civil or criminal, as he may deem proper under the circumstances. The Receiver is to advance from time to time as much money to the Attorney as may be required to defray his actual expenses, and when the services are finished the Court will make him a just compensation therefor. The parties are required with all possible dispatch to bring the case to a final hearing.

Incidentally the claim of the Port Huron & Lake Michigan bondholders to an equitable lien on the Chicago & Northeastern section of the line came up in the course of the proceedings. The Court granted leave for their counsel to file a cross-bill against the Chicago & Northeastern, which will bring up the whole question concerning the building of that road and where the money came from with which it was built. Counsel also asked for the appointment of a receiver for that road, but argument on this motion was postponed until the present week.

Chicago & Iowa.—In the United States Circuit Court in Chicago, Oct. 8, the injunction against the sale of this road was continued for 30 days, awaiting the proposition to compromise or settle the case. The company offers to pay the interest on past due coupons within 10 days. There is still some disagreement as to fees to attorneys and others in the case.

Chicago & Southwestern Indiana.—This company was organized in Chicago, Oct. 10, to build a railroad from that city southeast into Lake County, Ind., and thence south to Attica, about 115 miles, with several branches. The object is to make a direct line to the block coal fields of Clay and Parke counties in Indiana. The capital stock was fixed at \$600,000. An organization will be completed in Indiana as soon as possible.

Cincinnati, Effingham & Quincy Construction Co.—This organization has been completed for the purpose of building the projected narrow-gauge lines of the Quincy, Payson & Southeastern and the Springfield, Effingham & Southeastern, which together are to form a continuous line from Quincy, Ill., a little south of east to Switz City, Ind., about 240 miles. The company also intends to purchase the Bedford, Springville, Owensboro & Bloomfield road,

which is completed from Switz City to Bedford, 41 miles, and to build the projected Cincinnati & St. Louis road, from Bedford to Cincinnati, about 125 miles. The companies will be consolidated and the lines, if built, will extend from Quincy to Cincinnati, about 405 miles.

Cincinnati, Sandusky & Cleveland.—The *Boston Journal* says that this company "has now funded six coupons, or three years' interest, of its second-mortgage bonds, three coupons of which are past due, and are applying the earnings of the road to the payment of the floating debt, which was \$440,000, which will be reduced by this means to \$230,000, which will be further reduced or paid by sales of assets and by increased earnings. The earnings increased about \$80,000 from Jan. 1 to Aug. 15, and are now increasing about \$1,000 per week, with chances of a larger increase from the autumn traffic. The managers are confident that they will be enabled to pay the interest on all the indebtedness in the future, and will soon be clear of all floating incumbrances."

Denver & Rio Grande.—The latest reports from Colorado are to the effect that this company and the Atchison, Topeka & Santa Fe have concluded to give up the fight which has for some time raged between them, and have agreed upon a compromise. According to the report the Santa Fe Company is to continue work upon its New Mexico line, but is to leave the line to Leadville and the San Juan mines to the Rio Grande Company, while the latter is at once to renew its former relations with its rival, and to readjust it to Denver over its line. The Santa Fe road is thus to have the New Mexico business and its share of the Denver and Eastern traffic, while the Rio Grande road will take the San Juan business. Much of the latter will naturally pass to the Santa Fe east of Pueblo, and probably some such arrangement as this would be the best for both roads. It is not probable that either the San Juan or the New Mexico business would be profitable when divided between two rival lines, and the extension to Denver, which the Santa Fe Company proposed to build, would have been an expensive line with little prospect of profit under the sharp competition to which it would be subject.

The latest reports are to the effect that negotiations are pending for a long lease of the whole road to the Atchison, Topeka & Santa Fe. The terms are said to be the payment of a percentage of the gross earnings as rental, with a guarantee of a sufficient amount to pay interest on the bonded debt. Such a lease would give the Atchison, Topeka & Santa Fe the control of the business of New Mexico and Southern Colorado, besides an independent line to Denver, free from the interference of any other company.

Des Moines, Adel & Western.—Track is now laid on this narrow-gauge road from Waukee, Ia., on the Des Moines & Fort Dodge road, west to Adel, the county seat of Dallas County, a distance of about seven miles.

Eas River Bridge.—The trustees have applied to the Supreme Court for a peremptory *mandamus* requiring the city of New York to issue \$1,000,000 bonds, its proportion of the amount required to prosecute the work on the bridge. The application is resisted by Comptroller Kelly, who sets up in defense charges that the trustees are making extravagant expenditures, that they have already exceeded the estimates, and that the \$8,000,000, which the law requires the cities of New York and Brooklyn to provide, will not be sufficient to finish the bridge.

Eastern, of Long Island.—It is proposed to build a narrow-gauge road from the New York & Manhattan Beach road at East New York, eastward along the south shore of Long Island to Babylon, about 30 miles. For about 23 miles of this distance the road must be parallel and close to the Southern Railroad of Long Island, which has never been a successful line, having been once sold under foreclosure and being now unable to pay interest on all its bonds. The country has not been able to support one road, and a second can hardly hope to be successful.

Eastern Extension.—Tracklaying was begun on this road Oct. 3 at New Glasgow, N. S., where the road connects with the Pictou Branch of the Intercolonial. The contractor, Mr. James McDonald, expects to continue work through the winter, so as to have the line completed from New Glasgow east to Antigonish, 33 miles, in the spring.

Gulf, Colorado & Santa Fe.—The track of this road is now laid to a point five miles west of the late terminus at Arcola, Tex. This completes the first 50 miles, for which the Galveston County subscription of \$500,000 was voted. The road is graded for about 25 miles further and it is expected that the track will reach the crossing of the Galveston, Harrisburg & San Antonio at Richmond, 13 miles beyond the present terminus, in November. The section of five miles just completed includes an iron bridge over the Brazos River, which is 480 feet long, in three spans, and was built by the Baltimore Bridge Company.

The company has bought three engines and some cars, and a regular train is now run over the road.

Hartford, Providence & Fishkill.—The Hartford (Conn.) City Council on Oct. 14 voted to surrender the \$500,000 bonds of this road held by the city and to accept payment of the same from the New York & New England Company. This is a withdrawal from the previous action, when the Council declined to vote to surrender the bonds, expecting to contest the matter in court.

These Hartford bonds were promptly paid by the New York & New England Company Oct. 15, leaving only \$163,000 of the Connecticut bonds, and the \$500,000 held by the city of Providence outstanding. Payment is now being made of the outstanding bills and accounts due by the trustees who have been operating the road.

Havana, Rantoul & Eastern.—The grading and bridging is all finished and the iron has been bought for an extension of this road from Fisher, Ill., westward 23 miles to Le Roy, on the Indianapolis, Bloomington & Western. The iron is to be delivered at Le Roy and the track laid eastward from that point. This extension was built by a separate organization, the Le Roy Narrow-Gauge Company, which has just been consolidated with the Havana, Rantoul & Eastern.

Manchester & Keene.—Track on this road is now laid to Harrisville, N. H., nine miles west from the old terminus at Hancock and 18 miles from the eastern end of the road at Greenfield. The grading is all done to the western terminus at Keene, and the rails are being laid as fast as possible. The contractors hope to have cars running to Keene, 30 miles from Greenfield, by Nov. 20.

Massachusetts Central.—It is now said that the section of this road from Northampton, Mass., to Amherst, will be completed shortly and will be temporarily leased to the New Haven & Northampton Company until the rest of the road can be finished. This would give the New Haven & Northampton a desirable connection with the New London Northern at Amherst.

Montclair & Greenwood Lake.—The old report is revived that this road will be sold to the Erie, and connection made between the two roads by building from Goshen or

Middletown to Hewitt, the terminus of the Montclair. The road will then be used as a short line to New York. To serve any such purpose for the Erie the road will have to be entirely rebuilt, as it is now in very poor condition.

Nashua & Lowell.—Pending the hearing of the suit to prevent the lease of this road to the Boston & Lowell, the United States Court has continued the temporary injunction against the lease until Nov. 11.

Navasota & Montgomery.—Work has been begun on this road, which is to run from Navasota, Tex., on the Houston & Texas Central, eastward through Plantersville to Montgomery, about 25 miles. The grading from Navasota to Plantersville has been let to C. Hurley, of Sherman, Tex.; from Plantersville to Montgomery to D. F. Hartwell, of Denison, Tex. Contracts have also been let for the bridges and ties, and the iron has been arranged for and some of it shipped. The company hopes to have the road finished next January.

Nebraska.—Work is reported in progress on an extension of this road from Brownville, Neb., southward to a connection with the Atchison & Nebraska road near York. Some work was done on this extension (which will be about 35 miles long) about two years ago. The road is now leased by the Burlington & Missouri River in Nebraska, and the extension would give that company a new connection with Atchison and the lines thence to St. Louis.

New Brunswick.—Track on this road is now laid to Edmundston, N. B., 26 miles northwest from the late terminus at Hammond Place and 160 miles from the southern terminus at Gibson, opposite Fredericton. Edmundston is the most important place on the upper St. John and is almost the limit of settlement along the river. Near this place the line of the road will leave the St. John to cross over to Riviere du Loup on the St. Lawrence, through the almost unexplored wilderness along the Madawaska and by Lake Temiscouata.

New Jersey West Line.—Mr. Theodore F. Randolph and Benjamin G. Clarke, trustees, give notice that the sale of the road under foreclosure is completed, and that they are now ready to pay the percentage on the bonds and coupons warranted by the funds realized from the sale, after paying costs and expenses. Each bondholder is requested to send to the trustees at No. 52 Wall street, New York city, a statement giving the amount of bonds and coupons held by him, with the number and amount of each bond, and the date, number and amount of each coupon so held.

New York Elevated.—This company will receive until noon of Oct. 28, at its office in New York, sealed proposals for \$675,000 of its stock and \$675,000 of its 7 per cent. first-mortgage bonds, or for any part thereof. Each bid must be made for an equal amount of stock and bonds. No bids for the stock will be considered which are for less than the par value thereof, namely \$100 per share. The bonds are 7 per annum, coupon bonds of the denomination of \$1,000 each, the principal due Jan. 1, 1906. Coupons payable 1st January and 1st July in each year. The bonds will bear interest from the first day of January, 1879.

Interest will be allowed at the rate of 7 per cent. per annum on all payments made before that date. A deposit of 5 per cent. will be required from all bidders, which must accompany the bid, and which 5 per cent. will be indorsed on all such bids as are accepted. On such bids as are not accepted the deposits will be returned to the bidders. Fifty per cent. on all accepted bids will be required Nov. 15, 1878, on the payment of which one-half the stock and bonds will be delivered, the remaining 45 per cent. will be required Nov. 30, 1878, when the remainder of the stock and bonds will be ready for delivery. The company reserve the right to reject any and all bids which are not deemed satisfactory.

New York & Oswego Midland.—The holders of the Receiver's certificates and notes are to hold a meeting in New York, Oct. 23, for the purpose of forming an organization to protect their interests. There are said to be about \$550,000 certificates issued to pay off liens on equipment; about \$300,000 for rentals; about \$450,000 for labor claims against the company; \$150,000 for Receiver's pay-rolls; about \$120,000 notes for supplies, and some over-due bills, making about \$1,600,000 in all. The Circuit Court made these a lien prior to the bonds, but an appeal to the United States Supreme Court was taken by the bondholders, which is still undecided.

North Wisconsin.—This company has now finished the grading of a section of 20 miles of its track from Clayton, Wis., northward, and has begun the work of tracklaying. The section is to be finished this year, in order to comply with the conditions of the land grant.

Ohio & Mississippi.—Contrary to general expectation, what are known as the New York and Baltimore parties united at the annual meeting last week, and there was no serious opposition to the directors chosen. A committee was appointed to prepare a new plan of reorganization, and present it to the board as soon as possible. This committee consists of Messrs. Wm. Whiteright, Adrian Iselin, Jr., Robert L. Cutting and Henry M. Day, of New York, and W. W. Scarborough, of Cincinnati. It is said that the appointment of the New York directors on this committee was the consideration for the withdrawal of their opposition at the election.

Oil Transportation.—Secretary of Internal Affairs McCandless, of Pennsylvania, has addressed the following communication to Attorney General Lear.

"On the 8th day of September, A. D. 1878, a complaint was received by me of James H. Caldwell and others, charging the Pennsylvania Railroad Company, the New York, Lake Erie & Western Railroad Company, the New York Central & Hudson River Railroad Company and the Erie Railroad Company, corporations of the state of New York; Charles Pratt & Co., J. A. Bostwick, the Standard Oil Company, a corporation of the state of Ohio; the Lake Shore & Michigan Southern Railway Company, the Atlantic & Great Western Railroad Company, the Standard Oil Company, of Pennsylvania; the Acme Oil Company, of the state of New York; the Atlantic Refining Company, the Lake Shore Crude Oil Transportation Company, the United Pipe Lines, the Imperial Oil Company, the Pittsburgh, Titusville & Buffalo Railroad Company, the Allegheny Valley Railroad Company, the Buffalo, Bradford & Franklin Railroad Company, the Philadelphia & Erie Railroad Company, the Buffalo, New York & Philadelphia Railroad Company, corporations of this Commonwealth, with transcending their corporate functions and infringing upon the rights of individual citizens by entering upon illegal combination to make unjust discriminations upon freight, etc.

"In order to make a full and thorough investigation of these complaints, as was my duty under the seventeenth article of the Constitution and the act of Assembly, passed May 11, 1874, in pursuance thereof I appointed James Atwell my deputy to investigate the same, who at the request of the complainants, held protracted meeting at Titusville, Harrisburg, Pittsburgh and Philadelphia.

"Every facility was extended to those who sought to com-

plain, especially to citizens of Pittsburgh, large numbers of whose merchants were subpoenaed, and, except in a few instances, they failed to appear.

"A large number of witnesses were examined, whose testimony has been written and printed, and a copy of the same is at your disposal.

"I have concluded my investigation, and have since carefully read over and considered the whole of the evidence, and am clearly of the opinion that the charges contained in the communication of Caldwell and others have not been substantiated in any form that demands your action in the matter.

"Had such a case been presented against any of said corporations, requiring them to explain, I should have called for a report under the provisions of the act of Assembly and would have transmitted you the same.

"But I have seen no occasion to do so. The Constitution and the Act of Assembly require me, in case 'I believe the charges are just, and the matter complained of is beyond the ordinary province of individual redress, to certify my opinion to the Attorney-General of the state, whose duty it shall be, by an appropriate legal remedy, to redress the same by proceedings in the courts at the expense of the state.'

"In my opinion, no case has been presented to me 'that is beyond the ordinary province of individual redress.'

What action the Attorney-General will take on this communication remains to be seen. It may possibly lead to the withdrawal of the conspiracy suits whose commencement was noted last week.

Old Colony.—The latest accounts sum up the casualties at the Wollaston accident at 17 killed, 40 seriously and 90 slightly injured. It now appears that the accident was due to a misplaced switch, not to a collision with the freight train or any of its cars. The train seems to have passed over the first switch (a safety switch), without trouble, and to have struck the second switch just as the freight conductor was in the act of closing it, and it was this second switch by which the engines were thrown from the track.

On Oct. 11 the Railroad Commissioners so far concluded their investigation as to make the following report:

"In the matter of the disaster on the Old Colony Railroad, near Wollaston Station, on Tuesday evening, Oct. 8, in which a portion of an excursion train was thrown from the track and demolished with a serious loss of life, the Board of Railroad Commissioners, after a full investigation of the facts, a careful inspection of the locality and an examination of witnesses under oath, finds that the management of the Old Colony Railroad does not appear to be in any way responsible for the disaster; that if the rules and regulations of the road had been properly observed by the employees it would not have occurred; and that Charles H. Hartwell, the conductor of a freight train, who was switching cars at that point, by his criminal negligence and disregard of well-known rules, appears to be primarily responsible for the catastrophe which caused so serious a loss of life and injury to persons and property. In view of these conclusions the board has directed the arrest of said Hartwell for manslaughter."

This report was transmitted to the Attorney-General, who at once caused Hartwell to be arrested and held for trial.

Pennsylvania.—The car report from Columbia station on the Philadelphia Division is as follows for the month of September: Number of trains run east, 1,086; number of trains run west, 518; total, 1,605. Number of loaded cars moved east, 35,289; number of empty cars moved east, 1,197; total, 36,486. Number of loaded cars moved west, 9,761; number of empty cars moved west, 25,741; total, 35,502—making a grand total of 71,988 cars moved east and west during the month of September, 1878, an increase of 4,764 cars over the month of September, 1877.

Pittston & Hawley.—A correspondent of the Pottsville (Pa.) *Miners' Journal* says: "Within the past few weeks a scheme has been set on foot for building a new railroad (locomotive track) from Pittston, Luzerne County, to Hawley, Wayne County, connecting there with the Honesdale branch of the New York, Lake Erie & Western road (the Erie road) and through it with the main line to Lackawaxen and tide water.

"This is not a new proposal. Just such a scheme was projected by Mr. Charles Parrish, of Wilkesbarre, and others to build a railroad from that town to Hawley in connection with the Erie, for which surveys were made more than ten years ago.

"The contour of the country is a rough one, but there are already the two gravity tracks of the Pennsylvania Coal Company traversing the same belt of country, making the distance to Hawley in 45 miles, overcoming an elevation of 1,000 feet.

"The proposed new line, if constructed, will be about 40 miles, commencing at a point southwest of Pittston, near Gatesville, following as near as may be the present line of the Pennsylvania Coal Company to the Summit, with average grades of 45 feet to a mile. A reconnaissance has been made of the route by a Philadelphia engineer, who estimates the road will cost \$25,000 per mile to build; \$30,000, or \$1,200,000 would be a safer estimate.

"This enterprise has, no doubt, the sanction of the Erie Company, which, owning coal lands in the valley, and intending to join the Coal Combination, promises to support the road to the extent of 2,000,000 tons per annum. A feeder to their main line of such magnitude would be a very desirable connection, which they could no doubt obtain money to build. At the present time we look in vain for the supporting element of such a road—coal. All the coal lands in the valley of fair average quality are owned and controlled by the combination companies, which at all times stand ready to purchase a weak holder or operator. A few tracts yet remain which contain one, or perhaps two of the lowest coal beds in the measures, in isolated patches on the margin of the coal basin.

"There are rumors that Philadelphia capitalists are in the field as purchasers of coal lands in Jenkins township, in the back or third tier of lots bounded by Wilkesbarre township on the southwest; these lands have been in the market for years, their only value being for lumber (now all cut down) and coal. As a body of land they are not entirely underlaid with coal, or within the coal basin proper, neither are the coal beds as numerous as in the more central parts of the coal field.

"On the property adjoining there are said to be only two coal beds, the lowest the 'Red Ash' and the bed above, the 'Ross.' These, or one of them, have been developed to the extent of 186,000 tons in four years.

"It has also been reported that Mr. Caray has a contract to supply 500,000 tons of coal to the Erie at Honesdale, the conditions being based upon the selling price of coal at Buffalo, a competing point. The railroad and coal land scheme evidently emanates from the same source, but what the coal contract has to do with it report saith not."

Pittsburgh Southern.—Negotiations are in progress for the consolidation of the Waynesburg & Washington with this company, or for the purchase of a controlling interest in that road. In case they are successful the Pittsburgh Southern will use the line from Washington to Waynesburg as part of its main line, and will begin to build the extension into West Virginia from Waynesburg.

Potomac & Ohio.—At the election last week, Kanawha County, W. Va., voted to subscribe \$225,000 in county bonds in aid of this company, which proposes to build a narrow-gauge road from Charleston, W. Va., the head of navigation on the Kanawha River, to tide-water on the Potomac, near Acquia Creek or Quantico. This road is expected to be a costly one, passing through much difficult country, but its projectors hope for a large traffic in West Virginia coal and iron, and in timber all along the line.

Profile & Franconia Notch.—At a meeting of the board in Manchester, N. H., Oct. 9, it was resolved to begin work on the road at once. It is to run from the Boston, Concord & Montreal at Bethlehem, N. H., through the Franconia Notch in the White Mountains to Echo Lake, about 15 miles.

Quincy, Missouri & Pacific.—The Howe truss bridge, 160 ft. span, over the Chariton River, beyond Kirksville, Mo., was recently tested and accepted. Grading on the extension of the road is now completed for 21 miles west from Kirksville, and the track is laid seven miles from that place to a point a little beyond the Chariton bridge. Owners of coal property on the line of the extension are already preparing to work their mines.

Richmond & Danville.—At a special meeting in Richmond, Va., Oct. 15, the stockholders voted to approve the action of the board of directors in buying a controlling interest in the Charlotte, Columbia & Augusta Company.

Richmond, Fredericksburg & Potomac.—In the suit between this company and the city of Richmond the United States Supreme Court has affirmed the decision of the Virginia courts, and holds that the city ordinance prohibiting the company from running locomotives on the track through Broad street is valid. The Court holds that the ordinance does not violate the charter of the company; that it does not deprive it of any of its property without due process of law, and that the company is not denied the equal protection of law.

Rochester & Northern Minnesota.—This road is now completed and opened for business from the junction with the Winona & St. Peter at Rochester, Minn., northward to Pine Island, 16 miles. It is controlled by the Chicago & Northwestern and will be worked as a branch of that company's Winona & St. Peter line. There is quite a wide territory along it without a railroad near it.

Securities on the New York Stock Exchange.—The Governing Committee has decided to place the following securities on the regular list at the Stock Exchange:

1. Texas & Pacific first-mortgage bonds, \$3,552,000 issued and \$4,192,000 authorized; consolidated bonds, \$7,548,000 issued, \$1,360,000 held to provide for extension from Sherman to Fort Worth, and \$4,192,000 held to retire the first-mortgage bonds; income and land-grant bonds, \$8,908,000 authorized issue.

2. Chicago, St. Paul & Minneapolis, \$1,000,000 preferred stock, \$4,000,000 common stock, \$3,000,000 first-mortgage bonds and \$2,080,500 income and land-grant bonds. This company is successor to the West Wisconsin.

3. Chicago, Milwaukee & St. Paul, \$1,500,000 Iowa & Dakota Division 7 per cent. bonds. These bonds are a first mortgage on the extension of that division from Algona, Ia., west, at the rate of \$15,000 per mile.

4. Chicago & Alton, \$3,000,000 sinking fund 6 per cent. bonds, issued to build the Kansas City Extension.

5. Denver & Rio Grande, \$6,382,500 first-mortgage bonds. These, however, will not be put on the regular list until evidence is presented of the recording of the agreement between the company and the trustees that the issue shall not exceed its present amount.

St. Paul & Pacific.—On the St. Vincent Extension the old track which was laid several years ago for 28 miles north of Crookston, Minn., has been repaired and put in order, and new track has been laid northward down the valley of the Red River 32 miles further, leaving but a short distance to reach the Manitoba line. The terminus and depot grounds at St. Vincent are being laid out and inclosed. The terminus of the Pembina Branch of the Canadian Pacific is also being laid out, just across the line, and the town on the Manitoba side will be called Emerson. This terminal station is on the east side of the Red River, and three miles from Pembina, the old frontier station.

Spartanburg & Asheville.—The track on this road is now laid to Flat Rock, N. C., four miles beyond the late terminus at Pace's Gap and 43 miles from Spartanburg, S. C. The road-bed is all graded to Hendersonville and work is in progress on the track.

Texas & Pacific.—The Galveston (Texas) *News* of Oct. 10 says: "Lightning struck the local management of the Texas & Pacific Railway this afternoon. Investigations reveal a ring whose operations, dating back from 1874, are simply marvelous. The loss of this road on freight is fully 7 per cent., the greater portion of which has been stolen at this and intermediate points east. Officials, ex-officials and prominent business men of this city are implicated. Documentary evidence thus far unearthed is absolutely sufficient to convict three of the parties implicated. The operations of the ring embrace the Texas & Pacific, Central and other roads. Goods stolen from this point have been shipped and sold in St. Louis, Cincinnati and other cities. Details are withheld for the present, lest the publication of names and minute account of ramifications may defeat the ends of justice, and officers of the Houston & Texas Central deny that their employees are implicated."

Toledo, Peoria & Warsaw.—Receiver Hopkins reports as follows to the Court for July and August:

Balance, July 1.....	\$23,414.36
July receipts.....	141,181.17
August receipts.....	170,035.97
Total.....	\$334,631.50
July disbursements.....	\$120,367.84
August disbursements.....	135,372.68
	255,640.52

Balance, Sept. 1.....\$78,990.98

The receipts exceeded the disbursements by \$30,913.33 for July, and by \$34,663.29 for August, making a gain of \$55,576.62 for the two months.

Union Pacific.—An Omaha (Neb.) dispatch says: "The injunction case of William H. Platt, of Hall County, Neb., against the Union Pacific Railroad Company, involving the title to land of the railroad company which he said he pre-empted and improved, and which he claimed by the provisions of the act of Congress governing Union Pacific lands, was his property, three years having expired, has been appealed to the United States Supreme Court at Washington, D. C. In order to get an early decision, the case will be submitted to that court within the next thirty days, on printed arguments, under rule 20 of that court. The question involved is whether the land-grant mortgage is a sale or disposal of the lands, the United States Circuit Court in Nebraska, having just held, in opposition to Secretary Schurz's opinion, that it does constitute such a sale."